09/709,581

* * * * * * * * * * Welcome to STN International * * * * * * * * * *

NEWS 1		Web Page URLs for STN Seminar Schedule - N. America
NEWS 2		"Ask CAS" for self-help around the clock
NEWS 3	Feb 24	PCTGEN now available on STN
NEWS 4	Feb 24	TEMA now available on STN
NEWS 5	Feb 26	NTIS now allows simultaneous left and right truncation
NEWS 6	Feb 26	PCTFULL now contains images
NEWS 7	Mar 04	SDI PACKAGE for monthly delivery of multifile SDI results
NEWS 8	Mar 24	PATDPAFULL now available on STN
NEWS 9	Mar 24	Additional information for trade-named substances without structures available in REGISTRY
NEWS 10	Apr 11	Display formats in DGENE enhanced
NEWS 11	Apr 14	MEDLINE Reload
NEWS 12	Apr 17	Polymer searching in REGISTRY enhanced
NEWS 13	Jun 13	Indexing from 1947 to 1956 added to records in CA/CAPLUS
NEWS 14	Apr 21	New current-awareness alert (SDI) frequency in WPIDS/WPINDEX/WPIX
NEWS 15	Apr 28	RDISCLOSURE now available on STN
NEWS 16	May 05	Pharmacokinetic information and systematic chemical names added to PHAR
NEWS 17	May 15	MEDLINE file segment of TOXCENTER reloaded
NEWS 18	May 15	Supporter information for ENCOMPPAT and ENCOMPLIT updated
NEWS 19	May 19	Simultaneous left and right truncation added to WSCA
NEWS 20	May 19	RAPRA enhanced with new search field, simultaneous left and right truncation
NEWS 21	Jun 06	Simultaneous left and right truncation added to CBNB
NEWS 22	Jun 06	PASCAL enhanced with additional data
NEWS 23	Jun 20	2003 edition of the FSTA Thesaurus is now available
NEWS 24	Jun 25	HSDB has been reloaded
NEWS 25	Jul 16	Data from 1960-1976 added to RDISCLOSURE

NEWS EXPRESS	April 4 CURRENT WINDOWS VERSION IS V6.01a, CURRENT MACINTOSH VERSION IS V6.0b(ENG) AND V6.0Jb(JP), AND CURRENT DISCOVER FILE IS DATED 01 APRIL 2003
NEWS HOURS	STN Operating Hours Plus Help Desk Availability
NEWS INTER	General Internet Information
NEWS LOGIN	Welcome Banner and News Items
NEWS PHONE	Direct Dial and Telecommunication Network Access to STN
NEWS WWW	CAS World Wide Web Site (general information)

Enter NEWS followed by the item number or name to see news on that specific topic.

* * * * * * * * * * * * * STN Columbus * * * * * * * * * * * * * * *

FILE 'HOME' ENTERED AT 07:06:51 ON 18 JUL 2003

=> file caplus

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.21	0.21

```
FILE 'CAPLUS' ENTERED AT 07:07:08 ON 18 JUL 2003
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
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FILE COVERS 1907 - 18 Jul 2003  VOL 139 ISS 4
FILE LAST UPDATED: 17 Jul 2003  (20030717/ED)

  This file contains CAS Registry Numbers for easy and accurate
  substance identification.


=> s emulsion or microemulsion or micro-emulsion
        176505 EMULSION
        107534 EMULSIONS
        214126 EMULSION
                  (EMULSION OR EMULSIONS)
          9318 MICROEMULSION
          7757 MICROEMULSIONS
         10681 MICROEMULSION
                  (MICROEMULSION OR MICROEMULSIONS)
        118044 MICRO
           228 MICROS
        118265 MICRO
                  (MICRO OR MICROS)
        176505 EMULSION
        107534 EMULSIONS
        214126 EMULSION
                  (EMULSION OR EMULSIONS)
           252 MICRO-EMULSION
                  (MICRO(W)EMULSION)
L1      218311 EMULSION OR MICROEMULSION OR MICRO-EMULSION

=> (soya or soybean or soy) and rapeeed
(SOYA IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s (soya or soybean or soy) and rapeeed
          7502 SOYA
             2 SOYAS
          7503 SOYA
                  (SOYA OR SOYAS)
         91771 SOYBEAN
         14652 SOYBEANS
         94846 SOYBEAN
                  (SOYBEAN OR SOYBEANS)
         16231 SOY
             2 SOYS
```

```
         16231 SOY
                 (SOY OR SOYS)
             1 RAPEEED
L2           1 (SOYA OR SOYBEAN OR SOY) AND RAPEEED

=> s (soya or soybean or soy) and rapeseed
          7502 SOYA
             2 SOYAS
          7503 SOYA
                 (SOYA OR SOYAS)
         91771 SOYBEAN
         14652 SOYBEANS
         94846 SOYBEAN
                 (SOYBEAN OR SOYBEANS)
         16231 SOY
             2 SOYS
         16231 SOY
                 (SOY OR SOYS)
          7657 RAPESEED
           175 RAPESEEDS
          7695 RAPESEED
                 (RAPESEED OR RAPESEEDS)
L3        1862 (SOYA OR SOYBEAN OR SOY) AND RAPESEED

=> del l2 y

=> biodiesel
BIODIESEL IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s biodiesel
           664 BIODIESEL
            18 BIODIESELS
L4         665 BIODIESEL
                 (BIODIESEL OR BIODIESELS)

=> d his

     (FILE 'HOME' ENTERED AT 07:06:51 ON 18 JUL 2003)

     FILE 'CAPLUS' ENTERED AT 07:07:08 ON 18 JUL 2003
L1       218311 S EMULSION OR MICROEMULSION OR MICRO-EMULSION
L3         1862 S (SOYA OR SOYBEAN OR SOY) AND RAPESEED
L4          665 S BIODIESEL

=> s l1 and (l2 or l3)
L2 NOT FOUND
The L-number entered could not be found.  To see the definition
of L-numbers, enter DISPLAY HISTORY at an arrow prompt (=>).

=> s l1 and (l4 or l3)
L5         104 L1 AND (L4 OR L3)

=> s emulsifier or emulsive
         28878 EMULSIFIER
         17665 EMULSIFIERS
         36822 EMULSIFIER
                 (EMULSIFIER OR EMULSIFIERS)
           162 EMULSIVE
             2 EMULSIVES
```

```
           164 EMULSIVE
                 (EMULSIVE OR EMULSIVES)
L6        36960 EMULSIFIER OR EMULSIVE

=> s fuel amd l5
MISSING OPERATOR AMD L5
The search profile that was entered contains terms or
nested terms that are not separated by a logical operator.

=> s fuel and l5
        299575 FUEL
        141166 FUELS
        346162 FUEL
                 (FUEL OR FUELS)
L7          21 FUEL AND L5

=> d l7 1-21 all

L7   ANSWER 1 OF 21  CAPLUS  COPYRIGHT 2003 ACS
Full Text
AN   2003:376766  CAPLUS
DN   138:371052
TI   Process for making hydrogen gas
IN   Graham, David E.; Yodice, Richard; Burrington, James D.; Langer, Deborah
     A.; Mullay, John J.
PA   The Lubrizol Corporation, USA
SO   PCT Int. Appl., 63 pp.
     CODEN: PIXXD2
DT   Patent
LA   English
IC   ICM  C01B003-32
     ICS  C01B003-38; C01B003-34; C10L001-32
CC   49-1 (Industrial Inorganic Chemicals)
     Section cross-reference(s): 52
FAN.CNT 1
     PATENT NO.        KIND  DATE           APPLICATION NO.  DATE
     ---------------   ----  --------       ---------------  --------
PI   WO 2003040030      A1   20030515       WO 2002-US34917  20021031
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
             CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
             GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
             LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
             PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
             UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW
         RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT,
             LU, MC, NL, PT, SE, SK, TR
PRAI US 2001-8130       A    20011105
AB   This invention relates to a process for making hydrogen gas from a
     hydrocarbon source.  More particularly, this invention relates to a
     process for making hydrogen gas using a water blended hydrocarbon
     feedstock compn. as the hydrocarbon source.  The compn. forms a
     water-in-oil emulsion, an oil-in-water emulsion or a micro-emulsion.
ST   fuel cell hydrogen manuf hydrocatbon steam refirming
IT   Sulfonic acids, uses
     RL: NUU (Other use, unclassified); USES (Uses)
        (alkene; process for making hydrogen gas)
IT   Phenols, uses
     RL: NUU (Other use, unclassified); USES (Uses)
        (alkyl, ethoxylated; process for making hydrogen gas)
IT   Phenols, uses
     RL: NUU (Other use, unclassified); USES (Uses)
        (alkyl; process for making hydrogen gas)
```

IT Sulfonic acids, uses
RL: NUU (Other use, unclassified); USES (Uses)
(alkylarene, salts; process for making hydrogen gas)
IT Lecithins
Monoglycerides
RL: NUU (Other use, unclassified); USES (Uses)
(derivs.; process for making hydrogen gas)
IT Fatty acids, uses
RL: NUU (Other use, unclassified); USES (Uses)
(esters, ethoxylated; process for making hydrogen gas)
IT Phosphorus acids
RL: NUU (Other use, unclassified); USES (Uses)
(esters; process for making hydrogen gas)
IT Alcohols, uses
RL: NUU (Other use, unclassified); USES (Uses)
(ethoxylated, carboxylated; process for making hydrogen gas)
IT Amides, uses
Amines, uses
Fats and Glyceridic oils, uses
Fatty acids, uses
RL: NUU (Other use, unclassified); USES (Uses)
(ethoxylated; process for making hydrogen gas)
IT Esters, uses
RL: NUU (Other use, unclassified); USES (Uses)
(fatty, ethoxylated; process for making hydrogen gas)
IT Petroleum, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(heavy, hydrocarbon derived from; process for making hydrogen gas)
IT Alfalfa (Medicago sativa)
Arecaceae
Corn
Oil sand
Rapeseed
Soybean (Glycine max)
(hydrocarbon derived from; process for making hydrogen gas)
IT Bitumens
Coal, processes
Coke
Shale
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(hydrocarbon derived from; process for making hydrogen gas)
IT **Emulsions**
(**microemulsions**; process for making hydrogen gas)
IT **Emulsions**
(oil-in-water; process for making hydrogen gas)
IT Diesel **fuel**
Fuel cells
Fuel oil
Hydrocracking
Hydrodesulfurization
Petroleum hydrotreating
Steam reforming
Steam reforming catalysts
(process for making hydrogen gas)
IT Platinum-group metals
RL: CAT (Catalyst use); USES (Uses)
(process for making hydrogen gas)
IT Gasoline
Hydrocarbons, processes
Kerosene

Naphtha
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(process for making hydrogen gas)
IT Amine oxides
RL: NUU (Other use, unclassified); USES (Uses)
(process for making hydrogen gas)
IT Alcohols, uses
Fatty acids, uses
RL: NUU (Other use, unclassified); USES (Uses)
(propoxylated; process for making hydrogen gas)
IT Sulfonic acids, uses
RL: NUU (Other use, unclassified); USES (Uses)
(salts; process for making hydrogen gas)
IT Reforming apparatus
(steam; process for making hydrogen gas)
IT **Emulsions**
(water-in-oil; process for making hydrogen gas)
IT 7439-88-5, Iridium, uses 7440-02-0, Nickel, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-48-4, Cobalt, uses
RL: CAT (Catalyst use); USES (Uses)
(process for making hydrogen gas)
IT 1333-74-0P, Hydrogen, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(process for making hydrogen gas)
IT 56-81-5D, Glycerol, esters 57-50-1D, Sucrose, esters 504-75-6D, Imidazoline, derivs. 1330-69-4, Dodecyl benzene sulfonate 5138-18-1D, Sulfosuccinic acid, derivs. 9005-53-2, Lignin, uses 9005-53-2D, Lignin, derivs. 12441-09-7D, Sorbitan, derivs. 12441-09-7D, Sorbitan, esters 25496-01-9, Tridecyl benzene sulfonic acid 27176-87-0, Dodecyl benzene sulfonic acid 50852-11-4, Naphthalene sulfonate 113032-51-2, Tridecyl benzene sulfonate
RL: NUU (Other use, unclassified); USES (Uses)
(process for making hydrogen gas)
RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Exxonmobil Res Eng Co; WO 0070697 A 2000 CAPLUS
(2) Ici Ltd; GB 916981 A 1963 CAPLUS
(3) Lubrizol Corp; WO 0015740 A 2000 CAPLUS
(4) Taylor, W; US 3410661 A 1968
(5) Yount, J; US 4162143 A 1979 CAPLUS

L7 ANSWER 2 OF 21 CAPLUS COPYRIGHT 2003 ACS
Full Text
AN 2003:322276 CAPLUS
DN 138:308408
TI Treatment of oiled objects to remove oil therefrom
IN Kock, Johan Lodewyk Fransciscus
PA S. Afr.
SO S. African, 22 pp.
CODEN: SFXXAB
DT Patent
LA English
IC ICM B08B
ICS A01K; C09K
CC 59-2 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51, 52, 61
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	ZA 9906016	A	20000405	ZA 1999-6016	19990920

PRAI ZA 1999-6016 A 19990920
ZA 1998-5872 19980703

AB A method of treating an oiled object to remove oil therefrom comprising the steps of: applying a first cleaning agent to the object, the first cleaning agent being characterized therein that it comprises a fatty acid or an esterified fatty acid-contg. substance such as **biodiesel**, suitable for removing the oil; and a second cleaning agent for removing the oil and the cleaning agent from the surface. The object may comprise a living object such as for example plants; human or animal skin; fur; feathers; or exterior of animals. Alternatively, the object may comprise a non- living objects such as sand; rocks; water; engines or parts thereof; or storage tanks. The first cleaning agent may also be applied directly to the spilled oil. In a given example, the first cleaning agent has approx. the following compn.: Et palmitate, Et stearate, Et oleate and Et linoleate. The second cleaning agent was formulated by adding tap water (10 wt.%) to unwashed **biodiesel** and bringing the pH to 7.0 with the addn. of concd. HCl. An animal shampoo known as Pulvex was then added and this mixt. was shaken vigorously to effect a stable **emulsion**. It is believed that the soap causes the water, glycerol and other polar liqs. such as possibly ethanol in the admixt. to be present in the form of inverted micelles in the non-polar solvent namely unwashed **biodiesel**.

ST oil spill treatment **biodiesel** detergent animal cleaning

IT Diesel **fuel** substitutes
(**biodiesel**; method and cleaning agent for treatment of oiled animals and other objects affected by an oil spill)

IT Fatty acids, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(cleaning agent component; method and cleaning agent for treatment of oiled animals and other objects affected by an oil spill)

IT Fatty acids, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(esters, cleaning agent component; method and cleaning agent for treatment of oiled animals and other objects affected by an oil spill)

IT Aves
(marine bird; method and cleaning agent for treatment of oiled animals and other objects affected by an oil spill)

IT Aquatic animal
Detergents
Marine animal
Oil spill
(method and cleaning agent for treatment of oiled animals and other objects affected by an oil spill)

IT Soaps
RL: TEM (Technical or engineered material use); USES (Uses)
(method and cleaning agent for treatment of oiled animals and other objects affected by an oil spill)

IT Petroleum, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); REM (Removal or disposal); PROC (Process)
(removal of; method and cleaning agent for treatment of oiled animals and other objects affected by an oil spill)

IT Fatty acids, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(sunflower-oil, Et esters; method and cleaning agent for treatment of oiled animals and other objects affected by an oil spill)

IT Fatty acids, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(sunflower-oil, esters; method and cleaning agent for treatment of oiled animals and other objects affected by an oil spill)

IT 111-61-5, Ethyl stearate 111-62-6, Ethyl oleate 544-35-4, Ethyl linoleate 628-97-7, Ethyl palmitate
RL: TEM (Technical or engineered material use); USES (Uses)

(cleaning agent component; method and cleaning agent for treatment of oiled animals and other objects affected by an oil spill)
IT 56-81-5, Glycerol, uses 508169-78-6, Pulvex (soap)
RL: TEM (Technical or engineered material use); USES (Uses)
(method and cleaning agent for treatment of oiled animals and other objects affected by an oil spill)

L7 ANSWER 3 OF 21 CAPLUS COPYRIGHT 2003 ACS
Full Text
AN 2003:208448 CAPLUS
TI **Biodiesel fuels** from vegetable oils via catalytic and non-catalytic supercritical alcohol transesterifications and other methods: a survey
AU Demirbas, Ayhan
CS Department of Chemical Education, Karadeniz Technical University, PK 216, Trabzon, 61035, Turk.
SO Energy Conversion and Management (2003), 44(13), 2093-2109
CODEN: ECMADL; ISSN: 0196-8904
PB Elsevier Science Ltd.
DT Journal
LA English
CC 52 (Electrochemical, Radiational, and Thermal Energy Technology)
AB Vegetable oil **fuels** have not been acceptable because they were more expensive than petroleum **fuels**. With recent increases in petroleum prices and uncertainties concerning petroleum availability, there is renewed interest in vegetable oil **fuels** for Diesel engines. Diln. of oils with solvents and **microemulsions** of vegetable oils lowers the viscosity, but some engine performance problems still exist. The purpose of the transesterification process is to lower the viscosity of the oil. Pyrolysis produces more biogasoline than **biodiesel fuel**. Soap pyrolysis products of vegetable oils can be used as alternative Diesel engine **fuel**. Me and Et esters of vegetable oils have several outstanding advantages among other new renewable and clean engine **fuel** alternatives. The main factors affecting transesterification are the molar ratio of glycerides to alc., catalyst, reaction temp. and pressure, reaction time and the contents of free fatty acids and water in oils. The commonly accepted molar ratios of alc. to glycerides are 6:1-30:1.
RE.CNT 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Acaroglu, M; Energy Sources 2001, V23, P823 CAPLUS
(2) Adams, C; JAOCS 1983, V60, P1574 CAPLUS
(3) Akdeniz, F; Energy Edu Sci Technol 1998, V2, P17 CAPLUS
(4) Alencar, J; J Agric Food Chem 1983, V31, P1268 CAPLUS
(5) Altin, R; Energy Convers Manage 2001, V42, P529 CAPLUS
(6) Barsic, N; SAE Paper 1981, 810262
(7) Bartholomew, D; JAOCS 1981, V58, P286A
(8) Bender, M; Biores Technol 1999, V70, P81 CAPLUS
(9) Bilgin, A; Energy Sources 2002, V24, P431 CAPLUS
(10) Billaud, F; JAOCS 1995, V72, P1149 CAPLUS
(11) Canakci, M; Trans ASAE 2001, V44, P1429 CAPLUS
(12) Chand, C; Ind Eng Chem 1947, V39, P1543
(13) Chand, N; J Sci Ind Res 2002, V61, P7
(14) Darnoko, D; JAOCS 2000, V77, P1263 CAPLUS
(15) Demirbas, A; Energy Convers Manage 2002, V43, P2349 CAPLUS
(16) Demirbas, A; Fuel 1998, V77, P1117 CAPLUS
(17) Demirbas, A; Unpublished data
(18) Diasakou, M; Fuel 1998, V77, P1297 CAPLUS
(19) Dunn, R; Trans ASAE 2001, V44, P1151
(20) Encinar, J; Energy Fuels 2002, V16, P443 CAPLUS
(21) Formo, M; Physical properties of fats and fatty acids. 4th ed. Bailey's industrial oil and fat products 1979, V1
(22) Formo, M; Physical properties of fats and fatty acids. 4th ed. Bailey's industrial oil and fat products 1979, V1, P193

(23) Freedman, B; JAOCS 1986, V63, P1375 CAPLUS
(24) Freedman, B; Proceedings of the International Conference on Plant and Vegetable Oils as Fuels 1982, P17
(25) Fuls, J; Third International Conference On Energy Use Management 1981, P1595
(26) Giannelos, P; Ind Crop Prod 2002, V16, P1 CAPLUS
(27) Goering, C; Proceeding of the International Conference on Plant and Vegetable Oils as Fuels 1982, P279 CAPLUS
(28) Goering, E; Trans ASAE 1982, V25, P1472
(29) Goodrum, J; Biomass Bioenergy 2002, V22, P205 CAPLUS
(30) Isigigur, A; Appl Biochem Biotechnol 1994, V45/46, P103
(31) Iso, M; J Mol Cat B-Enzyme 2001, V16, P53 CAPLUS
(32) Karaosmonoglu, F; Energy Sources 1999, V21, P221
(33) Komers, K; Eur J Lipid Sci Technol 2001, V103, P363 CAPLUS
(34) Lang, X; Biores Technol 2001, V80, P53 CAPLUS
(35) Ma, F; Biores Technol 1999, V70, P1 CAPLUS
(36) Marquevich, M; Ind Eng Chem Res 2000, V39, P2140 CAPLUS
(37) Martini, N; Proceeding of the Symposium 1997, P6
(38) Mittelbach, M; JAOCS 2001, V78, P573 CAPLUS
(39) Pioch, D; Oleagineux 1993, V48, P289 CAPLUS
(40) Pryor, R; Trans ASAE 1982, V26, P333
(41) Saka, S; Fuel 2001, V80, P225 CAPLUS
(42) Saucedo, E; Ingeniera Quimica 2001, V20, P19
(43) Schwab, A; Fuel 1987, V66, P1372 CAPLUS
(44) Schwab, A; JAOCS 1988, V65, P1781 CAPLUS
(45) Shay, E; Biomass Bioenergy 1993, V4, P227 CAPLUS
(46) Sonntag, N; Structure and composition of fats and oils. 4th ed 1979, V1, P1
(47) Sprules, F; US 236694 1950
(48) Suppes, G; JAOCS 2001, V78, P139 CAPLUS
(49) Wright, H; Oil and Soap 1944, V21, P145 CAPLUS
(50) Zhang, D; Master thesis, Food Science and Technology, University of Nebraska
(51) Ziejewski, M; International Congress and Exposition 1986, Paper No 860301

L7 ANSWER 4 OF 21 CAPLUS COPYRIGHT 2003 ACS
Full Text
AN 2003:202747 CAPLUS
DN 138:240388
TI Strained ring compounds as combustion improvers for liquid **fuels**, including gasoline, diesel **fuel**, and **fuel** oil substitutes
IN Baker, Mark R.; Daly, Daniel T.
PA The Lubrizol Corporation, USA
SO PCT Int. Appl., 19 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C10L001-18
CC 51-7 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 24
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003020852	A2	20030313	WO 2002-US27673	20020829

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR

PRAI US 2001-317205P P 20010905
OS MARPAT 138:240388
AB Combustion improvers for liq. **fuels** are compds. with 3-4-membered strained rings that can contain N and O heteroatoms in the ring. Suitable strained ring-type compds. include an epoxy or oxetane ring, a cyclopropyl or cyclobutyl group, bicyclopropyl, C1-5-alkyl mono- or disubstituted bicyclopropyl, fused bicyclo or spirocyclic groups, dicyclopropyl ketone, dicyclobutyl ketone, cyclopropylmethanol, cyclobutyl amine, cyclobutyl hydroxylamine, 3,3-dimethyloxetane, 1-methoxy-2-methylpropylene oxide, nitro compds., and hydroxylamine salts. Suitable hydroxylamines are of general formulas Ra[N(Rb)-OH]n (Ra and Rb = H and primary and secondary hydrocarbyl; n = 1-30) and Rc[N(OH)-Rd]x-N(OH)-Rc (Rc = H or hydrocarbyl; Rd = lower alkylene; x = 1-29). The compds. are combustion improvers meeting specifications ASTM D-4814 (gasoline), ASTM D-975 (diesel **fuel**), and ASTM D-396 (**fuel** oil).
ST strained ring combustion improver **fuel**; gasoline combustion improver strained ring; diesel combustion improver strained ring; **fuel** oil combustion improver strained ring; cyclopropyl strained ring combustion improver **fuel**
IT Cycloalkanes
RL: MOA (Modifier or additive use); USES (Uses)
(C3-4; strained ring compds. as combustion improvers for liq. **fuels**, including gasoline, diesel **fuel**, and **fuel** oil substitutes)
IT Amines, uses
RL: MOA (Modifier or additive use); USES (Uses)
(N-hydroxy, strained-ring; strained ring compds. as combustion improvers for liq. **fuels**, including gasoline, diesel **fuel**, and **fuel** oil substitutes)
IT Epoxides
RL: MOA (Modifier or additive use); USES (Uses)
(additives; strained ring compds. as combustion improvers for liq. **fuels**, including gasoline, diesel **fuel**, and **fuel** oil substitutes)
IT Diesel **fuel** substitutes
(**biodiesel**, synthetic liq. **fuels**; strained ring compds. as combustion improvers for liq. **fuels**, including gasoline, diesel **fuel**, and **fuel** oil substitutes)
IT Diesel **fuel** substitutes
Gasoline substitutes
(combustion improvers for; strained ring compds. as combustion improvers for liq. **fuels**, including gasoline, diesel **fuel**, and **fuel** oil substitutes)
IT **Fuel** additives
(combustion improvers, for synthetic liq. **fuels**; strained ring compds. as combustion improvers for liq. **fuels**, including gasoline, diesel **fuel**, and **fuel** oil substitutes)
IT Diesel **fuel** additives
Fuel oil additives
Gasoline additives
(combustion improvers; strained ring compds. as combustion improvers for liq. **fuels**, including gasoline, diesel **fuel**, and **fuel** oil substitutes)
IT **Fuels**
(**emulsions**, combustion improvers for; strained ring compds. as combustion improvers for liq. **fuels**, including gasoline, diesel **fuel**, and **fuel** oil substitutes)
IT **Emulsions**
(**fuel**, combustion improvers for; strained ring compds. as combustion improvers for liq. **fuels**, including gasoline, diesel **fuel**, and **fuel** oil substitutes)

IT Alcohols, uses
Ethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(liq. **fuels**; strained ring compds. as combustion improvers for liq. **fuels**, including gasoline, diesel **fuel**, and **fuel** oil substitutes)
IT Strain
(ring; strained ring compds. as combustion improvers for liq. **fuels**, including gasoline, diesel **fuel**, and **fuel** oil substitutes)
IT Nitro compounds
Spiro compounds
RL: MOA (Modifier or additive use); USES (Uses)
(strained-ring; strained ring compds. as combustion improvers for liq. **fuels**, including gasoline, diesel **fuel**, and **fuel** oil substitutes)
IT **Fuel** oil
(substitutes, combustion improvers for; strained ring compds. as combustion improvers for liq. **fuels**, including gasoline, diesel **fuel**, and **fuel** oil substitutes)
IT Fischer-Tropsch reaction
(synthetic liq. **fuels**; strained ring compds. as combustion improvers for liq. **fuels**, including gasoline, diesel **fuel**, and **fuel** oil substitutes)
IT Fats and Glyceridic oils, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(vegetable, synthetic liq. **fuels**; strained ring compds. as combustion improvers for liq. **fuels**, including gasoline, diesel **fuel**, and **fuel** oil substitutes)
IT 110-05-4, tert-Butylperoxide 696-59-3, Dimethoxytetrahydrofuran 1121-37-5, Dicyclopropyl ketone 2516-33-8, Cyclopropylmethanol 2516-34-9, Cyclobutyl amine 4415-97-8, Dicyclobutyl ketone 5685-46-1, Bicyclopropyl 5685-46-1D, Bicyclopropyl, derivs. 6921-35-3, 3,3-Dimethyloxetane 19693-75-5 25322-01-4, Nitropropane 37459-10-2 455885-93-5
RL: MOA (Modifier or additive use); USES (Uses)
(combustion improver; strained ring compds. as combustion improvers for liq. **fuels**, including gasoline, diesel **fuel**, and **fuel** oil substitutes)

L7 ANSWER 5 OF 21 CAPLUS COPYRIGHT 2003 ACS
Full Text
AN 2003:86588 CAPLUS
DN 139:24020
TI Emulsification of pyrolysis derived bio-oil in diesel **fuel**
AU Ikura, Michio; Stanciulescu, Maria; Hogan, Ed
CS Natural Resources Canada, CANMET Energy Technology Centre--Ottawa, Ottawa, Can.
SO Biomass and Bioenergy (2003), 24(3), 221-232
CODEN: BMSBEO; ISSN: 0961-9534
PB Elsevier Science Ltd.
DT Journal
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 51
AB Bio-oil produced by fast pyrolysis is very viscous, highly acidic and does not ignite easily as it contains a substantial amt. of structural water. To circumvent these problems pyrolytic bio-oil was emulsified in No. 2 diesel **fuel**. In the current investigation, very heavy fractions of bio-oil were removed from bio-oil by centrifugation prior to emulsification. **Emulsions** so produced can be very stable depending on processing conditions. A series of emulsification runs was carried out to

det. the relationship between process conditions, **emulsion** stability and processing costs. Of five process variables examd. (temp., residence time, bio-oil concn., surfactant concn. and power input per unit vol.) only the last three had significant effects on **emulsion** stability. The tests showed there were optimal operating conditions that produced stable **emulsions**. The formation of stable **emulsions** required surfactant concn. ranging from 0.8 to 1.5 wt% of total, depending on bio-oil concn. and power input. The costs of producing stable **emulsions** using Hypermers (com. surfactants) were unacceptably high, ranging from 5.2 cents/L for 10% **emulsion** to 8.9 cents/L for 30% **emulsion**. However, when the cost of a newly developed proprietary CANMET surfactant was assumed, they could be reduced to 2.6 cents/L for 10% **emulsion**, 3.4 cents/L for 20% **emulsions** and 4.1 cents/L for 30% **emulsions**, resp. **Fuel** properties such as heating values, cetane no., viscosity and corrosivity were characterized. The heating value of centrifuged bio-oil was about one third of that of No. 2 diesel, reducing the heating values of **emulsions** accordingly. A cetane no. of pyrolytic bio-oil was 5.6. **Emulsion** viscosities, particularly in the 10-20% bio-oil concn. range, are substantially lower than the viscosity of bio-oil itself, making these products very easy to handle. The viscosity of **emulsion fuels** was best described by Einstein's equation for dil. solid dispersions. The corrosivity of **emulsion fuels** defined by the wt. loss of steel is about half of the bio-oil alone.

ST **biodiesel** emulsification

IT Diesel **fuel** substitutes
(**biodiesel**; emulsification of pyrolysis derived bio-oil in diesel **fuel**)

IT Diesel **fuel**
Emulsions
(emulsification of pyrolysis derived bio-oil in diesel **fuel**)

IT Emulsification
(of pyrolysis derived bio-oil in diesel **fuel**)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Adjaye, J; Fuel Processing Technology 1995, V45, P161 CAPLUS
(2) Bertoli, C; SAE paper 2000, 2000-01-2975
(3) Bridgwater, A; Journal of Analytical and Applied Pyrolysis 1999, V51, P3 CAPLUS
(4) Bridgwater, A; Proceedings Third Biomass Conference of the Americas 1997, V1, P797
(5) Huffman, D; Proceedings First Biomass Conference of the Americas 1993
(6) Ikura, M; US 5820640 1998 CAPLUS
(7) Jay, D; ASME Fall Technical Conference 1995, V3, P51
(8) Quemada, D; Lecture notes in physics 1982, P210 CAPLUS
(9) Scott, D; Journal of Analytical and Applied Pyrolysis 1999, V51, P23 CAPLUS
(10) Tadros, T; Colloids and Surfaces A: Physicochemical and Engineering Aspects 1994, V91, P39 CAPLUS
(11) Vitolo, S; Fuel 1999, V78, P1147 CAPLUS

L7 ANSWER 6 OF 21 CAPLUS COPYRIGHT 2003 ACS

Full Text

AN 2002:888857 CAPLUS

DN 137:372374

TI Aromatics-free diesel **fuel emulsions** containing plant-derived glyceridic oils and fatty esters

IN Castiglioni, Antonio M.; Giupponi, Massimiliano; Lombardi, Alessandro

PA Exxonmobil Chemical Patents Inc., USA

SO PCT Int. Appl., 18 pp.
CODEN: PIXXD2

DT Patent

LA English

IC ICM C10L001-02

ICS C10L001-32
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2002092731	A1	20021121	WO 2002-EP4880	20020503

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI IT 2001-MI1002 A 20010516

AB Aroms.-free diesel **fuels** consist of a non-arom. hydrogenated hydrocarbon component (esp. paraffins, isoparaffins, and cycloparaffins) 100, a plant or animal oil (or derived fatty acid ester) 1-50, water 0-30, and surfactants and stabilizers ≤4 vol. parts. The hydrocarbon component has a boiling range 140-230°, flammability point 30-150°, and a distn. range boiling width of 5-50° (e.g., a narrow-boiling hydrogenated gas oil). Suitable plant oils are selected from **rapeseed** oil, sunflower oil, **soybean** oil, and palm oil, and their corresponding Me esters. Suitable stabilizers and surfactants include nonionic surfactants (preferably ethoxylated alcs.), ethoxylated (and/or propoxylated) polyols, sorbitan monooleate, ethylene glycol, and polyethylene glycol C16-18-alkyl ethers.

ST diesel **fuel** glyceridic oil **emulsion**; plant glyceridic oil methyl ester diesel **fuel emulsion**; gas oil glyceridic **emulsion** diesel **fuel**

IT Polyoxyalkylenes, uses
RL: NUU (Other use, unclassified); USES (Uses)
(C16-18-alkyl ethers, surfactants, for diesel **fuel** substitutes; aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

IT Glycerides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(animal, diesel **fuel** substitutes; aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

IT Diesel **fuel** substitutes
(aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

IT Palm oil
Rape oil
Soybean oil
Sunflower oil
RL: TEM (Technical or engineered material use); USES (Uses)
(diesel **fuel** substitutes; aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

IT **Emulsions**
(diesel **fuel**, substitutes; aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

IT Diesel **fuel**
(**emulsions**, substitutes; aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

IT Alcohols, uses
RL: NUU (Other use, unclassified); USES (Uses)

(ethoxylated, surfactants, for diesel **fuel** substitutes; aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

IT Gas oils
(hydrocarbon component, diesel **fuel** substitutes; aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

IT Alkanes, uses
Cycloalkanes
Isoalkanes
RL: TEM (Technical or engineered material use); USES (Uses)
(hydrocarbon component, diesel **fuel** substitutes; aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

IT Fatty acids, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(palm-oil, Me esters, diesel **fuel** substitutes; aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

IT Fatty acids, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(plant oils, Me esters, diesel **fuel** substitutes; aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

IT Glycerides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(plant, diesel **fuel** substitutes; aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

IT Alcohols, uses
RL: NUU (Other use, unclassified); USES (Uses)
(polyhydric, ethoxylated, propoxylated, surfactants, for diesel **fuel** substitutes; aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

IT Fatty acids, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(rape-oil, Me esters, diesel **fuel** substitutes; aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

IT Fatty acids, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**soya**, Me esters, diesel **fuel** substitutes; aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

IT Fatty acids, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(sunflower-oil, Me esters, diesel **fuel** substitutes; aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

IT 107-21-1, Ethylene glycol, uses 1338-43-8, Sorbitan monooleate
RL: NUU (Other use, unclassified); USES (Uses)
(stabilizer, diesel **fuel** substitutes; aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

IT 25322-68-3D, POLYETHYLENE GLYCOL, C16-18-alkyl ethers
RL: NUU (Other use, unclassified); USES (Uses)
(surfactants, for diesel **fuel** substitutes; aroms.-free diesel **fuel emulsions** contg. plant-derived glyceridic oils and fatty esters)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

(1) Caterpillar Inc; WO 9963026 A 1999 CAPLUS
(2) Johnson, L; US 5520708 A 1996 CAPLUS
(3) Yakobson, D; US 5506272 A 1996 CAPLUS

L7 ANSWER 7 OF 21 CAPLUS COPYRIGHT 2003 ACS
Full Text
AN 2002:573390 CAPLUS
DN 137:127375
TI **Fuel** additives in **fuel** composition for combustion engine
PA AAE Technologies International Limited, Ire.; Cognis Deutschland G.m.b.H. Co. K.-G.
SO Eur. Pat. Appl., 15 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM C10L001-14
ICS C10L001-10; C10L001-02; C10L001-32; C10L010-02
CC 51-7 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1227143	A1	20020731	EP 2001-101960	20010129

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

PRAI EP 2001-101960 20010129

AB There is described a **fuel** additive compn. comprising an oleic alkanolamide and an alkoxylated oleic acid. There is also described a **fuel** compn. comprising a hydrocarbon **fuel** and a **fuel** additive comprising an oleic alkanolamide and an alkoxylated oleic acid and also a method of running a combustion engine using the **fuel** of the invention.

ST **fuel** additive gasoline diesel combustion engine alkanolamide

IT Amides, uses
RL: MOA (Modifier or additive use); NUU (Other use, unclassified); USES (Uses)
(N-(hydroxyalkyl), oleic; **fuel** additives in **fuel** compn. for combustion engine)

IT Diesel **fuel** substitutes
(**biodiesel**; **fuel** additives in **fuel** compn. for combustion engine)

IT **Fuels**
(**emulsions**; **fuel** additives in **fuel** compn. for combustion engine)

IT Combustion engines
Diesel **fuel**
Diesel **fuel** additives
Fuel additives
Gasoline additives
(**fuel** additives in **fuel** compn. for combustion engine)

IT Gasoline
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(**fuel** additives in **fuel** compn. for combustion engine)

IT **Emulsions**
(**fuel**; **fuel** additives in **fuel** compn. for combustion engine)

IT 112-80-1, Oleic acid, uses
RL: MOA (Modifier or additive use); NUU (Other use, unclassified); USES (Uses)
(alkoxylated; **fuel** additives in **fuel** compn. for combustion engine)

IT 301-02-0D, Alkanol

RL: MOA (Modifier or additive use); NUU (Other use, unclassified); USES (Uses)
(**fuel** additives in **fuel** compn. for combustion engine)

IT 64-17-5, Ethanol, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(**fuel** additives in **fuel** compn. for combustion engine)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Capelle, A; US 4110283 A 1978
(2) Henkel Kgaa; DE 2940782 A 1981 CAPLUS
(3) Kao Corp; EP 0957152 A 1999 CAPLUS
(4) Pure Energy Corp; WO 9920715 A 1999 CAPLUS
(5) Pure Energy Corp; WO 0031216 A 2000 CAPLUS
(6) Teresa, K; WO 9944732 A 1999 CAPLUS
(7) Thorley, D; WO 9952996 A 1999 CAPLUS
(8) Univ City; GB 2217229 A 1989 CAPLUS
(9) Vernon, W; WO 9817745 A 1998 CAPLUS
(10) Vernon, W; WO 0036055 A 2000 CAPLUS
(11) Wenzel, D; WO 9935215 A 1999 CAPLUS

L7 ANSWER 8 OF 21 CAPLUS COPYRIGHT 2003 ACS

Full Text

AN 2002:558882 CAPLUS

DN 137:339862

TI Bio-Crude-Oil/diesel oil emulsification: main achievements of the emulsification process and preliminary results of tests on diesel engine

AU Baglioni, P.; Chiaramonti, D.; Bonini, M.; Soldaini, I.; Tondi, G.

CS Consorzio Interuniversitario Sviluppo Sistemi a Grande Interfase, University of Florence, Florence, Italy

SO Progress in Thermochemical Biomass Conversion, [Conference], 5th, Tyrol, Austria, Sept. 17-22, 2000 (2001), Meeting Date 2000, Volume 2, 1525-1539. Editor(s): Bridgwater, A. V. Publisher: Blackwell Science Ltd., Oxford, UK.
CODEN: 69CXBF; ISBN: 0-632-05533-2

DT Conference

LA English

CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)

AB In the context of an increasing use of renewable energy sources, biomass derived pyrolysis oil Bio-Crude-Oil (BCO) has potential to replace **fuel** oil or diesel in many applications such as boilers, turbines and alternative engines for electricity prodn. However, technol. development for BCO upgrading in order to improve its utilization is still a problem to be solved. This paper describes the main results of a research project (supported by the European Commission, DG XII, JOULE Program) aimed at the development of a low-cost phys.-chem. and mech. process for facilitating BCO utilization in small diesel engine units. This process is based on the prepn. of an **emulsion** between BCO and diesel **fuel**. BCO and diesel **fuel** are not miscible, therefore a third component has to be added to obtain a stable **emulsion**. This third component is called emulsifier (or surfactant). It changes the interfacial properties of the system avoiding (or delaying) the **emulsion** breaking. The developed **emulsions**, based on different BCO in terms of feedstock and prodn. facility, have been tested in a conventional small size Diesel unit (6.25 kW) at Pasquali Macchine Agricole (Italy). These tests were aimed at assessing combustion quality, operating performances and emission levels of the diesel engine fueled with the BCO/diesel oil **emulsion**: some not structural modifications were made on the engine, mainly adding of components for insulating and cooling.

ST **biodiesel** blend diesel **fuel**

IT Diesel **fuel**
(Bio-Crude-Oil/diesel oil emulsification main achievements and preliminary results of tests on diesel engine)
IT Diesel **fuel** substitutes
(**biodiesel**; Bio-Crude-Oil/diesel oil emulsification main achievements and preliminary results of tests on diesel engine)
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Anon; Proceedings of the "10th European Conference Technology Exhibition Biomass for Energy and Industry" 1998
(2) Anon; Progress reports 2000, Contract JOR3-CT98-0307
(3) Anon; Progress reports 2000
(4) Bio-Energy Research Group; PyNE Newsletter
(5) Bridgwater, A; Fast Pyrolysis of Biomass: a handbook 1999
(6) Leech, J; Biomass gasification and pyrolysis. State of the art and future prospects 1997, P495

L7 ANSWER 9 OF 21 CAPLUS COPYRIGHT 2003 ACS
Full Text
AN 2002:539576 CAPLUS
DN 137:111249
TI Fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives
IN Pearson, Graeme Richard; Morrison, John David
PA Megachem Pty Ltd., Australia
SO PCT Int. Appl., 47 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM B01F017-34
ICS B01F017-36; C06B047-14; C06B023-00
CC 50-2 (Propellants and Explosives)
Section cross-reference(s): 33
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2002055184	A1	20020718	WO 2002-AU30	20020111

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI AU 2001-2539 A 20010112
AB Emulsifiers for stabilizing water-in-oil **emulsion** explosives (with crystal habit modifiers for prevention of crystn. of inorg. nitrates) are prepd. by reaction of fatty acids with hexitols and pentitols (or their cyclic or bicyclic anhydrides) to form esters that are then reacted with other agents to react with the free acid groups. The emulsifiers are formed by reaction of: (1) 40-70 wt.% of fatty acid esters of the above monosaccharides, (2) 5-25 wt.% of the other multifunctional reactive agents, and (3) 20-45 wt.% of a third reactive agent that has three or more reactive functional groups capable of reacting with the other multifunctional reactive agents. Suitable examples of component (2) include dicarboxylic and tricarboxylic acids (and their anhydrides), dimer acids, and trimer acids; suitable examples of component (3) are C8-40 structures such as castor oil, epoxidized or hydrogenated castor oil, epoxidized soybean oil, epoxidized linseed oil, tri(alkylol)propane

triesters of mono- or polyunsatd. fatty acids, pentaerythritol esters, dipentaerythritol hexaoleate, and polyglycerol polyricinoleate. The **fuel** phase is typically inorg. nitrate salts, such as NH4NO3, Ca(NO3)2, and NaNO3.

ST emulsifier monosaccharide fatty acid ester **emulsion** explosive; hexitol fatty acid ester emulsifier **emulsion** explosive; pentose fatty acid ester emulsifier **emulsion** explosive; amide fatty acid ester emulsifier **emulsion** explosive

IT Lecithins
RL: MOA (Modifier or additive use); USES (Uses)
(Lipotin 100UB, **emulsion** explosives contg.; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Amides, uses
RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(N,N-bis(hydroxyethyl), reaction products with fatty acids and sorbitan sesquioleate, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Alcohols, uses
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(amino, derivs., reaction products with fatty acid esters with monosaccharides, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Alcohols, uses
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(amino, reaction products, with fatty acid esters with monosaccharides, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Alditols
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(anhydrohexitols, esters with fatty acids, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Alditols
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(anhydropentitols, esters with fatty acids, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Diesel **fuel** substitutes
(**biodiesel**, **emulsion** explosives contg.; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Acid halides
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(chlorides, fatty acid, reaction products with fatty acids and monosaccharides, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Anhydrides
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(cyclic, esters with monosaccharides; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Amines, uses
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(cyclic, reaction products with fatty acid esters with monosaccharides,

emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Amines, uses
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(cyclic, secondary, reaction products with fatty acid esters with monosaccharides, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Amines, uses
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(diamines, reaction products, with fatty acid esters with monosaccharides, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Isocyanates
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(diisocyanates, reaction products with fatty acids esters with hexitols (or pentitols), emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Fatty acids, uses
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(dimer acids, esters, with monosaccharides; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Hydrocarbon oils
RL: MOA (Modifier or additive use); USES (Uses)
(**emulsion** explosives contg. Prorex 36; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Diesel **fuel**
(**emulsion** explosives contg.; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Explosives
(**emulsion**; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Castor oil
Linseed oil
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(epoxidized, reaction products with fatty acids and monosaccharides, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Soybean oil
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(epoxidized, reaction products, with fatty acids and monosaccharides, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Pentoses
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(esters with fatty acids, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Alditols
Monosaccharides
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(esters, with fatty acids, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Glycols, uses
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(esters, with fatty acids, hexitols (or pentitols), derivs., emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Fatty acids, uses
RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(esters, with sorbitan, adipic acid, and castor oil; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Fatty acids, uses
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(esters, with tri(alkylol)propane, esters with fatty acids, hexitols (or pentitols), derivs., emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Alcohols, uses
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(ether, esters with fatty acids, hexitols (or pentitols), derivs., emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Anhydrides
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(fatty acid, reaction products with fatty acids and monosaccharides, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Emulsifying agents
Transesterification
(fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Fatty acids, uses
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(hexitol and pentitol esters, reaction products, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Carbohydrates, uses
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(hexitols, esters with fatty acids, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Castor oil
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(hydrogenated, reaction products with fatty acids and monosaccharides, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Fatty acids, uses
RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(mixed esters with sorbitan, vegetable-oil Me esters, and tallow Me esters; emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Amidation
(of fatty acid esters with monosaccharides, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Castor oil
Glycerides, uses
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(reaction products, with fatty acids and monosaccharides, emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Fatty acids, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(soya, Me esters, **biodiesel**, **emulsion** explosives contg.; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Fatty acids, uses
RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(tallow, Me esters, mixed esters with sorbitan, vegetable-oil Me esters, and oleic acid; emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Anhydrides
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(tricarboxylic acids, esters with monosaccharides; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Fatty acids, uses
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(unsatd., esters, with tri(alkylol)propane, esters with fatty acids, hexitols (or pentitols), derivs., emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Fatty acids, uses
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(unsatd., trimers, esters with monosaccharides; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT Fatty acids, uses
RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(vegetable-oil, Me esters, reaction products with sorbitan fatty esters, stearic acid, and sorbitol; emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT 50852-11-4, Naphthalenesulfonate
RL: MOA (Modifier or additive use); USES (Uses)
(Galoryl AT 725, **emulsion** explosives contg.; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT 25852-26-0, Naphthalene-formaldehyde copolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(emulsifiers contg.; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT 1338-43-8, Sorbitan monooleate
RL: TEM (Technical or engineered material use); USES (Uses)
(emulsifiers contg.; in synthesis of fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT 57-11-4DP, Stearic acid, reaction products with vegetable-oil Me esters, sorbitol, and sorbitan esters 64-19-7DP, Acetic acid, reaction products with vegetable-oil Me esters, sorbitol, and sorbitan esters 112-80-1DP, Oleic acid, mixed esters with sorbitan, vegetable oil Me esters, and tallow Me esters 7664-38-2DP, Phosphoric acid, reaction products with

vegetable-oil Me esters, sorbitol, and sorbitan esters 8007-43-0DP, Sorbitan sesquioleate, esters with trimer acids 8007-43-0DP, Sorbitan sesquioleate, esters with trimer acids, bis(hydroxyethyl) amides 8007-43-0DP, Sorbitan sesquioleate, reaction products with castor oil and maleic anhydride 8007-43-0DP, Sorbitan sesquioleate, reaction products with castor oil and maleic anhydride, bis(hydroxyethyl) amides 8007-43-0DP, Sorbitan sesquioleate, reaction products with castor oil and trimellitic anhydride 8007-43-0DP, Sorbitan sesquioleate, reaction products with castor oil and trimellitic anhydride, bis(hydroxyethyl) amides 8007-43-0DP, Sorbitan sesquioleate, reaction products with hydrogenated castor oil and maleic anhydride 8007-43-0DP, Sorbitan sesquioleate, reaction products with hydrogenated castor oil and maleic anhydride, bis(hydroxyethyl) amides 8007-43-0DP, Sorbitan sesquioleate, reaction products with maleic anhydride, polymers 8007-43-0DP, Sorbitan sesquioleate, reaction products with maleic anhydride, polymers, bis(hydroxyethyl) amides
RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT 85-44-9DP, Phthalic anhydride, esters with fatty acids and hexitols (or pentitols) 97-73-4DP, Lactic acid anhydride, esters with fatty acids and hexitols (or pentitols) 98-88-4DP, Benzoyl chloride, reaction products with fatty acid esters with monosaccharides 103-80-0DP, Phenylacetyl chloride, reaction products with fatty acid esters with monosaccharides 110-15-6DP, Succinic acid, esters with fatty acids and hexitols (or pentitols) 110-16-7DP, Maleic acid, esters with fatty acids and hexitols (or pentitols) 111-20-6DP, Sebacic acid, esters with fatty acids and hexitols (or pentitols) 111-41-1DP, reaction products with fatty acid esters with monosaccharides 111-42-2DP, Diethanolamine, reaction products with fatty acid esters with hexitols and pentitols 115-77-5DP, Pentaerythritol, esters, esters with fatty acids, hexitols (or pentitols), derivs., 124-04-9DP, Adipic acid, esters with fatty acids and hexitols (or pentitols) 141-82-2DP, Malonic acid, esters with fatty acids and hexitols (or pentitols) 144-62-7DP, Oxalic acid, esters with fatty acids and hexitols (or pentitols) 552-30-7DP, Trimellitic anhydride, esters with fatty acids and hexitols (or pentitols) 645-45-4DP, Benzenepropanoyl chloride, reaction products with fatty acid esters with monosaccharides 7664-41-7DP, Ammonia, reaction products with fatty acid esters with monosaccharides 12441-09-7DP, Sorbitan, mixed fatty acid esters, reaction products with trimer acids and diethanolamine 26266-63-7DP, 1,3-Isobenzofurandione, tetrahydro-, esters with fatty acids and hexitols (or pentitols) 70984-13-3DP, Dipentaerythritol hexakisoleate, esters with fatty acids, hexitols (or pentitols), derivs., 167547-81-1DP, esters with fatty acids, hexitols (or pentitols), derivs.,
RL: NUU (Other use, unclassified); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(emulsifiers; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT 162355-09-1, Pegasol R 150 443462-49-5, Galoryl AT 725
RL: MOA (Modifier or additive use); USES (Uses)
(**emulsion** explosives contg.; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT 6484-52-2, Ammonium nitrate, uses 7631-99-4, Sodium nitrate, uses 10031-35-3, Nitric acid, calcium salt, monohydrate 10043-01-3, Aluminum sulfate 10124-37-5, Calcium nitrate
RL: TEM (Technical or engineered material use); USES (Uses)
(**emulsion** explosives contg.; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)

IT 8007-43-0P, Sorbitan sesquioleate
RL: PUR (Purification or recovery); PREP (Preparation)
(purifn. of; in synthesis of fatty acid-hexitol (or pentitol) esters

and amides as emulsifiers for **emulsion** explosives)
IT 149532-32-1D, Unidyme 60, reaction products with fatty acid esters with hexitols and pentitols
RL: CPS (Chemical process); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(trimer acid; fatty acid-hexitol (or pentitol) esters and amides as emulsifiers for **emulsion** explosives)
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Briggs; US 4892806 A 1990 CAPLUS
(2) Diener; US 6063954 A 2000 CAPLUS
(3) Eastman Kodak Company; EP 0688781 B1 1995 CAPLUS
(4) The Lubrizol Corporation; WO 0152976 A2 2001 CAPLUS

L7 ANSWER 10 OF 21 CAPLUS COPYRIGHT 2003 ACS
Full Text
AN 2002:49570 CAPLUS
DN 136:169975
TI The effects of ethanol content and emulsifying agent concentration on the stability of vegetable oil-ethanol **emulsions**
AU Xu, Qingyi; Nakajima, Mitsutoshi; Nabetani, Hiroshi; Iwamoto, Satoshi; Liu, Xinqi
CS National Food Research Institute, Tsukuba, 305-8642, Japan
SO Journal of the American Oil Chemists' Society (2001), 78(12), 1185-1190
CODEN: JAOCA7; ISSN: 0003-021X
PB AOCS Press
DT Journal
LA English
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 45, 46, 52, 66
AB In vegetable oil-ethanol **emulsions** ethanol is the polar phase and vegetable oil is the nonpolar phase. The primary advantage of vegetable oil-ethanol **emulsions** over conventional water-oil **emulsions** is that they enable the incorporation of water- and oil-insol. or poorly sol. functional compds. and/or drugs into **emulsions**. A no. of nonionic surfactants were used to select appropriate stabilizers for stable vegetable oil-ethanol **emulsions**. The authors found decaglycerol mono-oleate (MO750) to be the best stabilizer for ethanol-in-oil (E/O) **emulsions**. The effects of ethanol content and of emulsifying agent concn. on the stability of vegetable oil-ethanol **emulsions** were examd. with MO750. After emulsification, two turbid layers formed simultaneously when ethanol content exceeded 20%. The top layers (oil-in-ethanol **emulsions**; O/E **emulsions**) were very unstable, whereas the stability of the bottom layers (E/O **emulsions**) depended on the ethanol content. The stability of E/O **emulsions** is closely related to the effective concn. of MO750 aggregates, which play an important role in the film thickness stability of interfacial films formed by surfactant aggregates. Instability of E/O **emulsion** at 5% MO750 is probably due to the polydispersity (i.e., nonuniform size and shape) of MO750 aggregates at high MO750 concn. E/O **emulsions** prepd. with 0.1, 0.5, and 1% MO750 were stable, suggesting that the interfacial films formed were effective in protecting the droplets against coalescence and Ostwald ripening.
ST ethanol vegetable oil **emulsion** oleic acid ester stability surfactant
IT Diesel **fuel** substitutes
(**biodiesel**; effect of ethanol content and emulsifying agent concn. on the stability of vegetable oil-ethanol **emulsion**)
IT Dispersing agents
Dispersion (of materials)
Hydrophile-lipophile balance value
(effect of ethanol content and emulsifying agent concn. on the stability of vegetable oil-ethanol **emulsion**)
IT Lecithins

RL: MOA (Modifier or additive use); USES (Uses)
(egg yolk; effect of ethanol content and emulsifying agent concn. on the stability of vegetable oil-ethanol **emulsion**)

IT Fatty acids, uses
RL: MOA (Modifier or additive use); USES (Uses)
(esters, C6-C18 esters with polyglycerol; effect of ethanol content and emulsifying agent concn. on the stability of vegetable oil-ethanol **emulsion**)

IT Drops
(microdroplets; effect of ethanol content and emulsifying agent concn. on the stability of vegetable oil-ethanol **emulsion**)

IT Emulsifying agents
(nonionic; effect of ethanol content and emulsifying agent concn. on the stability of vegetable oil-ethanol **emulsion**)

IT Sunflower oil
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(oleic acid-high; effect of ethanol content and emulsifying agent concn. on the stability of vegetable oil-ethanol **emulsion**)

IT Ostwald ripening
(prevention of; effect of ethanol content and emulsifying agent concn. on the stability of vegetable oil-ethanol **emulsion**)

IT Lecithins
RL: MOA (Modifier or additive use); USES (Uses)
(soya; effect of ethanol content and emulsifying agent concn. on the stability of vegetable oil-ethanol **emulsion**)

IT Fats and Glyceridic oils, processes
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(vegetable; effect of ethanol content and emulsifying agent concn. on the stability of vegetable oil-ethanol **emulsion**)

IT 1338-39-2, Span 20 1338-41-6, Span 60 1338-43-8, Span 80 9005-65-6, Tween 80 9005-66-7, Tween 40 9005-67-8, Tween 60 9005-70-3, Tween 85 11094-60-3, SY-Glyster DAO 750 25496-72-4, Glycerol monooleate 26266-57-9, Span 40 26266-58-0, Span 85 34406-66-1, SY-Glyster ML 750 51033-38-6, ML500 51033-41-1, MCA750 71012-10-7, SY-Glyster MO 310 75798-42-4, SY-Glyster ML 310 79665-92-2, MO500 103230-29-1, PO310 104934-17-0, PO500 186912-83-4, MO750
RL: MOA (Modifier or additive use); USES (Uses)
(effect of ethanol content and emulsifying agent concn. on the stability of vegetable oil-ethanol **emulsion**)

IT 64-17-5, Ethanol, processes
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(effect of ethanol content and emulsifying agent concn. on the stability of vegetable oil-ethanol **emulsion**)

IT 7732-18-5, Water, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(effect of ethanol content and emulsifying agent concn. on the stability of vegetable oil-ethanol **emulsion**)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Agboola, S; J Sci Food Agric 1996, V72, P448 CAPLUS
(2) Anon; Kagaku Binran (Chemistry Handbook: in Japanese), 3rd edn 1984, VII, P52
(3) Borwankar, R; Food Emulsions and Foams 1999, P45 CAPLUS
(4) Chidambaram, N; AAPS PharmSci 2000, V2(3) CAPLUS
(5) Chidambaram, N; AAPS PharmSci 2000, V2(3) CAPLUS
(6) Dickinson, E; Colloids Surf 1999, V12, P139 CAPLUS
(7) Dickinson, E; J Colloid Interface Sci 1998, V197, P133 CAPLUS
(8) Faergemand, M; Int Dairy J 1998, V8, P715 CAPLUS

(9) Ivanov, I; Colloids Surf A 1997, V128, P155 CAPLUS
(10) Knothe, G; American Chemical Society Symposium Series 1997, 666, P196
(11) Kralchevsky, P; Langmuir 1990, V6, P1180
(12) Nabetani, H; Proceedings of the Third International Soybean Processing and Utilization Conference 2000, P686
(13) Nikolov, A; Colloids Surf A 1996, V118, P221 CAPLUS
(14) Nikolov, A; Colloids Surf A 1997, V128, P243 CAPLUS
(15) Nikolov, A; Colloids Surf A 1997, V123-124, P375 CAPLUS
(16) Nikolov, A; J Colloid Interface Sci 1989, V133, P1 CAPLUS
(17) Nikolov, A; J Colloid Interface Sci 1989, V133, P13 CAPLUS
(18) Nikolov, A; Prog Colloids Polym Sci 1990, V82, P87 CAPLUS
(19) Pearce, K; J Agric Food Chem 1978, V26, P716 CAPLUS
(20) Xu, Q; J Colloid Interface Sci 2001, V242, P443 CAPLUS

L7 ANSWER 11 OF 21 CAPLUS COPYRIGHT 2003 ACS
Full Text
AN 2001:921628 CAPLUS
DN 136:234304
TI Biofuels derived from vegetable oils and fats
AU Knothe, Gerhard; Dunn, Robert O.
CS Agricultural Research Service, National Center for Agricultural Utilization Research, US Department of Agriculture, Peoria, IL, 61604, USA
SO Oleochemical Manufacture and Applications (2001), 106-163. Editor(s): Gunstone, Frank D.; Hamilton, Richard J. Publisher: Sheffield Academic Press, Sheffield, UK.
CODEN: 69CCQZ
DT Conference; General Review
LA English
CC 51-0 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 45, 52
AB A review on the use of vegetable oil-based diesel **fuels**, particularly in the form of esters (**biodiesel**). Topics discussed include sources and prodn. of such **fuels**, general comparison of **fuels** from vegetable oils and animal fats, process economics, regulatory issues, history and development, combustion of and emissions from **biodiesel fuels**, properties of **biodiesel** (e.g., low-temp. properties and storage stability), blending with conventional diesel **fuels**, transesterification, use of waste vegetable oils, pyrolyzed vegetable oils, use of **microemulsions**, and outlook for **biodiesel fuels**. Although vegetable oil-based **fuels** cannot replace all petroleum-based diesel **fuels**, they play an important role among the alternative **fuels** and contribute to the goal of energy independence and security.
ST review diesel **fuel** vegetable oil **biodiesel**; transesterification vegetable oil **biodiesel** review
IT Fatty acids, preparation
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
(Et esters, **biodiesel**; **biodiesel fuels** derived from vegetable oils and fats)
IT Fatty acids, preparation
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
(Me esters, **biodiesel**; **biodiesel fuels** derived from vegetable oils and fats)
IT Transesterification
(**biodiesel fuels** derived from vegetable oils and fats)
IT Glycerides, reactions
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(**biodiesel fuels** derived from vegetable oils and fats)
IT Diesel **fuel** substitutes
(**biodiesel**; **biodiesel fuels** derived from

vegetable oils and fats)
IT Diesel **fuel** additives
(cetane improvers, for **biodiesel**; **biodiesel** **fuels** derived from vegetable oils and fats)
IT Combustion
(of **biodiesel fuels**; **biodiesel** **fuels** derived from vegetable oils and fats)
IT Thermal decomposition
(of glycerides; **biodiesel fuels** derived from vegetable oils and fats)
IT Fats and Glyceridic oils, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(vegetable, waste, glyceride source; **biodiesel fuels** derived from vegetable oils and fats)
RE.CNT 279 THERE ARE 279 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Ahn, E; Sep Sci Technol 1995, V30, P2021 CAPLUS
(2) Ahouissoussi, N; Industrial Uses of Agricultural Materials 1995, P35
(3) Ali, Y; Bioresour Technol 1994, V47, P131 CAPLUS
(4) Ali, Y; Bioresour Technol 1994, V50, P153 CAPLUS
(5) Ali, Y; Bioresour Technol 1995, V52, P185 CAPLUS
(6) Ali, Y; Bioresour Technol 1995, V52, P237 CAPLUS
(7) Ali, Y; J Am Oil Chem Soc 1995, V72, P1557 CAPLUS
(8) Andrews, A; Energy Agric 1984, V3, P323 CAPLUS
(9) Anon; Biodiesel Report 1996
(10) Anon; INFORM 1999, V10, P886
(11) Anon; Oil Gas J 2000, V98, P53
(12) Anon; Oil World 2001, V44, P71
(13) Anon; www.unitedsoybean.org 2000, V1(5), P2
(14) Applewhite, T; Kirk-Othmer, Encyclopedia of Chemical Technology, 3rd edn 1980, V9, P795 CAPLUS
(15) Avella, F; Riv Combust 1992, V46, P181 CAPLUS
(16) Bacon, D; Beyond the Energy Crisis 1981, V3, P1525
(17) Bagby, M; ASAE Paper No 87-1583, 1987 Int Winter Meeting ASAE 1987
(18) Bagby, M; Proc 9th Int Conf Jojoba Uses 3rd Int Conf New Industr Crops Prod 1996, P220
(19) Bagley, S; Environ Sci Technol 1998, V32, P1183 CAPLUS
(20) Bailer, J; Fresenius' J Anal Chem 1991, V340, P186 CAPLUS
(21) Batel, W; Grundl Landtechnik 1980, V30, P40
(22) Bessee, G; Soc Automot Eng, [Spec Publ] 1997, VSP-1274, P221 CAPLUS
(23) Bettis, B; Agron J 1982, V74, P335 CAPLUS
(24) Billaud, F; J Am Oil Chem Soc 1995, V72, P1149 CAPLUS
(25) Bohmke, U; EP 543356 1993 CAPLUS
(26) Bondioli, P; J Am Oil Chem Soc 1995, V72, P699 CAPLUS
(27) Bondioli, P; Riv Ital Sostanze Grasse 1992, V69, P467 CAPLUS
(28) Bondioli, P; Riv Ital Sostanze Grasse 1992, V69, P7 CAPLUS
(29) Bondioli, P; Riv Ital Sostanze Grasse 1994, V71, P287 CAPLUS
(30) Bondioli, P; Riv Ital Sostanze Grasse 1996, V73, P349 CAPLUS
(31) Boocock, D; Biomass Bioenergy 1996, V11, P43 CAPLUS
(32) Boocock, D; J Am Oil Chem Soc 1996, V73, P1247 CAPLUS
(33) Boocock, D; J Am Oil Chem Soc 1998, V75, P1167 CAPLUS
(34) Borgelt, S; Liq Fuels, Lubr Addit Biomass, Proc Altern Energy Conf 1994, P67 CAPLUS
(35) Bormann, K; DE DD287048 1991
(36) Boruff, P; Trans ASAE 1982, V25, P47 CAPLUS
(37) Braun, D; Alternative fuel blends and diesel engine tests, Vegetable Oil Fuels 1982, P294
(38) Breccia, A; J Microwave Power Electromagn Energy 1999, V34, P3
(39) Bruwer, J; 1980 National Energy Symposium 1980, P11
(40) Bruwer, J; 1980 Symposium 1980, P7
(41) Bruwer, J; Energy Biomass Conf, 1st 1981, EUR 1981, EUR 7091, P934

(42) Bunger, J; J Mutation Res 1998, V415, P13 CAPLUS
(43) Bunger, J; Mutagenesis 2000, V15, P391 CAPLUS
(44) Canakci, M; Trans ASAE 1999, V42, P1203 CAPLUS
(45) Canakci, M; Trans ASAE 1999, V42, P1565 CAPLUS
(46) Carraro, E; J Environ Pathol, Toxicol Oncol 1997, V16, P101 MEDLINE
(47) Cecchi, G; Rev Fr Corps Gras 1987, V34, P397 CAPLUS
(48) Chang, D; J Am Oil Chem Soc 1996, V73, P1549 CAPLUS
(49) Charpentier, C; Entropie 1987, V23, P27 CAPLUS
(50) Chavanne, C; BE 422877 1937 CAPLUS
(51) Chavanne, G; Bull Soc Chim 1943, V10, P52 CAPLUS
(52) Choo, Y; Chem Ind 2000, P530 CAPLUS
(53) Choo, Y; Lipid Technologies and Applications 1997, P771 CAPLUS
(54) Clark, S; J Am Oil Chem Soc 1984, V61, P1632 CAPLUS
(55) Claude, S; Lipid Technology Newsletter 2000, V6, P105
(56) Clevenger, M; Trans ASAE 1988, V31, P381
(57) Clothier, P; Chem Soc Rev 1993, V22, P101 CAPLUS
(58) Connemann, J; Fat Sci Technol 1994, V96, P536
(59) Crookes, R; Arch Combust 1993, V13, P57 CAPLUS
(60) Cruz, J; Resour Conserv 1981, V6, P69 CAPLUS
(61) Cvengros, J; Bioresour Technol 1996, V55, P145 CAPLUS
(62) Cvengros, J; J Am Oil Chem Soc 1994, V71, P1349 CAPLUS
(63) Cvengrosova, Z; Petroleum Coal 1997, V39, P36 CAPLUS
(64) Da Rocha, F; Fuel 1993, V72, P543
(65) Darcey, C; Trans ASAE 1983, V26, P1626 CAPLUS
(66) Davies, B; WO 9410267 1994 CAPLUS
(67) de, B; Fett/Lipid 1999, V101, P404 CAPLUS
(68) de Filippis, P; J Am Oil Chem Soc 1995, V72, P1399 CAPLUS
(69) de Guzman, D; Chem Market Reporter 2001, V259, P10
(70) Demmering, G; DE 4040317 1992 CAPLUS
(71) Diesel, R; Engineering 1912, V93, P395 CAPLUS
(72) Diesel, R; Proc Inst Mech Eng 1912, P179 CAPLUS
(73) Dimmig, T; Chem Tech (Leipzig) 1999, V51, P326 CAPLUS
(74) Dos Anjos, J; Appl Catal 1983, V5, P299 CAPLUS
(75) Douros, T; Erdoel, Erdgas, Kohle 1987, V103, P228 CAPLUS
(76) Dunn, R; J Dispers Sci Technol 1992, V13, P77 CAPLUS
(77) Dunn, R; J Dispers Sci Technol 1993, V14, P1 CAPLUS
(78) Freedman, B; J Am Oil Chem Soc 1986, V63, P1370 CAPLUS
(79) Freedman, B; J Am Oil Chem Soc 1986, V63, P1375 CAPLUS
(80) Freedman, B; J Am Oil Chem Soc 1989, V66, P1601 CAPLUS
(81) Freedman, B; J Am Oil Chem Soc 1990, V67, P565 CAPLUS
(82) Freedman, B; J Am Oil Chem Soc 1990, V66, P595
(83) Freedman, B; SAE Technical Pap Ser 900343 1990, P9
(84) Gelbard, G; J Am Oil Chem Soc 1995, V72, P1239 CAPLUS
(85) Geller, D; Indust Crops Prod 1999, V9, P85 CAPLUS
(86) Geyer, S; Trans ASAE 1984, V27, P375 CAPLUS
(87) Glassman, I; Combustion, 3rd edn 1996
(88) Goering, C; Evaluation of soybean oil-aqueous ethanol microemulsions, Vegetable Oil Fuels 1982, P279 CAPLUS
(89) Goering, C; J Am Oil Chem Soc 1984, V61, P1638
(90) Goering, C; Trans ASAE 1982, V25, P1472 CAPLUS
(91) Goering, C; Trans ASAE 1983, V26, P1602 CAPLUS
(92) Goodrum, J; Trans ASAE 1982, V25, P897 CAPLUS
(93) Googin, J; Energy Res 1983, V3, P173 CAPLUS
(94) Graboski, M; Prog Energy Combust Sci 1998, V24, P125 CAPLUS
(95) Graille, J; Oleagineux 1982, V37, P421 CAPLUS
(96) Graille, J; Oleagineux 1985, V40, P271 CAPLUS
(97) Graille, J; Oleagineux 1986, V41, P457 CAPLUS
(98) Gryglewicz, S; Bioresour Technol 1999, V70, P249 CAPLUS
(99) Gunstone, F; Lipid Handbook 2nd edn 1994
(100) Gusmao, J; Catal Today 1989, V5, P533 CAPLUS
(101) Gutsche, B; Fett/Lipid 1997, V99, P418 CAPLUS
(102) Haas, M; J Am Oil Chem Soc 2000, V77, P373 CAPLUS

(103) Harrington, K; Biomass 1986, V9, P1 CAPLUS
(104) Harrington, K; J Am Oil Chem Soc 1985, V62, P1009 CAPLUS
(105) Hassan, M; J Energy, Heat Mass Transfer 1993, V15, P293 CAPLUS
(106) Hochhauser, A; Kirk-Othmer, Encyclopedia of Chemical Technology, 4th edn 1994, V12, P341
(107) Holcapek, M; J Chromatogr, A 1999, V858, P13 CAPLUS
(108) Howell, S; SAE Technical Pap Ser 971687 in State of Alternative Fuel Technologies 1997, P203 CAPLUS
(109) Hunter, H; US 5380343 1995 CAPLUS
(110) Ikwuagwu, O; Industr Crops Prod 2000, V12, P57 CAPLUS
(111) Isigigur, A; Appl Biochem Biotechnol 1993, V39-40, P89 CAPLUS
(112) Isigigur, A; Appl Biochem Biotechnol 1994, V45-46, P103 CAPLUS
(113) Isigigur, A; Appl Biochem Biotechnol 1994, V45-46, P93 CAPLUS
(114) Kaieda, M; J Bioscience Bioeng 1999, V88, P627 CAPLUS
(115) Karaosmanoglu, F; Energy Sources 1999, V21, P221 CAPLUS
(116) Karaosmanoglu, F; Renewable Energy:Technol Environ Proc World Renewable Energy Congr 2nd 1992, V3, P1455 CAPLUS
(117) Kato, M; Sekiyu Gakkaishi 1992, V35, P115 CAPLUS
(118) Kaufman, K; Trans ASAE 1984, V27, P1626 CAPLUS
(119) Kaufmann, H; Fett Seifen Anstrichm 1958, V60, P919 CAPLUS
(120) Kildiran, G; J Am Oil Chem Soc 1996, V73, P225 CAPLUS
(121) Klopfenstein, W; J Am Oil Chem Soc 1982, V59, P531 CAPLUS
(122) Klopfenstein, W; J Am Oil Chem Soc 1985, V62, P1029 CAPLUS
(123) Knothe, G; ACS Symposium Series 666: Fuels and Chemicals from Biomass 1997, P172 CAPLUS
(124) Knothe, G; INFORM 1996, V7, P827
(125) Knothe, G; J Am Oil Chem Soc 1991, V68, P259 CAPLUS
(126) Knothe, G; J Am Oil Chem Soc 1992, V69, P341 CAPLUS
(127) Knothe, G; J Am Oil Chem Soc 1998, V75, P1007 CAPLUS
(128) Knothe, G; J Am Oil Chem Soc 1999, V76, P795 CAPLUS
(129) Knothe, G; J Am Oil Chem Soc 2000, V77, P489 CAPLUS
(130) Knothe, G; J Am Oil Chem Soc 2000, V77, P865 CAPLUS
(131) Knothe, G; SAE Technical Pap Ser 971681 in State of Alternative Fuel Technologies 1997, P127 CAPLUS
(132) Knothe, G; SAE Technical Paper Series 920194 1992
(133) Komers, K; Fett/Lipid 1998, V100, P507 CAPLUS
(134) Korus, R; Polymerization of vegetable oils, (Vegetable Oil Fuels) 1982, P218 CAPLUS
(135) Krahl, J; Landbauforschung Volkenrode 1994, V44, P182
(136) Krahl, J; Motortechn Z 1996, V57, P24
(137) Krahl, J; SAE Tech Pap Ser 961847 1996, P14
(138) Krahl, J; SAE Tech Pap Ser 962096 1996, P319
(139) Krawczyk, T; INFORM 1996, V7, P801
(140) Krisnangkura, K; J Am Oil Chem Soc 1986, V63, P552 CAPLUS
(141) Ladommatos, N; Fuel 1995, V74, P1083 CAPLUS
(142) Ladommatos, N; Fuel 1996, V75, P8 CAPLUS
(143) Lal, K; US 5338471 1994 CAPLUS
(144) Lal, K; EP 604125 1994 CAPLUS
(145) Lane, J; Kirk-Othmer, Encyclopedia of Chemical Technology, 3rd Edn 1980, V11, P682
(146) Last, R; Soc Automot Eng [Spec Publ] 1995, VSP-1093, P9 CAPLUS
(147) Lechner, M; J High Resolut Chromatogr 1997, V20, P581 CAPLUS
(148) Lee, I; J Am Oil Chem Soc 1995, V72, P1155 CAPLUS
(149) Lee, I; J Am Oil Chem Soc 1996, V73, P631 CAPLUS
(150) Lepori, W; Liq Fuels Renewable Resour, Proc Altern Energy Conf 1992, P89 CAPLUS
(151) Lewtas, K; WO 9318115 1993 CAPLUS
(152) Lilly, L; Diesel Engine Reference Book, 1st edn 1980
(153) Linko, Y; J Biotechnol 1998, V66, P41 CAPLUS
(154) Lozano, P; Fresenius' J Anal Chem 1996, V354, P319 CAPLUS
(155) Ma, F; Bioresour Technol 1999, V70, P1 CAPLUS
(156) Ma, F; Bioresour Technol 1999, V69, P289 CAPLUS

(157) Ma, F; Ind Eng Chem Res 1998, V37, P3768 CAPLUS
(158) Ma, F; Trans ASAE 1998, V41, P1261 CAPLUS
(159) Mackay, R; Nonionic Surfactants:Physical Chemistry, Surf Sci Ser 1987, V23, P297 CAPLUS
(160) Mariani, C; Riv Ital Sostanze Grasse 1991, V68, P549 CAPLUS
(161) Martin, J; EP 587551 1994 CAPLUS
(162) Masjuki, H; J Energy, Heat Mass Transfer 1994, V16, P295 CAPLUS
(163) Mason, M; Prepr - Am Chem Soc, Div Pet Chem 1998, V43, P579 CAPLUS
(164) McBain, M; Solubilization and related phenomena 1955, P179
(165) McDonald, J; Soc Automot Eng [Spec Publ] 1995, VSP-1093, P191 CAPLUS
(166) Miller, N; Spill Sci Technol Bull 1997, V4, P17 CAPLUS
(167) Mills, G; J Inst Energy 1983, V56, P131 CAPLUS
(168) Mittelbach, M; Bioresour Technol 1996, V56, P7 CAPLUS
(169) Mittelbach, M; Chromatographia 1993, V37, P623 CAPLUS
(170) Mittelbach, M; Chromatographia 1996, V42, P431 CAPLUS
(171) Mittelbach, M; Energy Agric 1983, V2, P369 CAPLUS
(172) Mittelbach, M; Energy Agric 1985, V4, P207 CAPLUS
(173) Mittelbach, M; J Am Oil Chem Soc 1990, V92, P145 CAPLUS
(174) Mittelbach, M; J Am Oil Chem Soc 1990, V67, P168 CAPLUS
(175) Mittelbach, M; J Am Oil Chem Soc 1999, V76, P545 CAPLUS
(176) Mittelbach, M; Liq Fuels Renewable Resour, Proc Altern Energy Conf 1992, P74 CAPLUS
(177) Mittelbach, M; Liq Fuels, Lubr Addit Biomass, Proc Altern Energy Conf 1994, P151 CAPLUS
(178) Mittelbach, M; Oesterr Chem Z 1989, V90, P147 CAPLUS
(179) Msipa, C; Trans ASAE 1983, V26, P1669 CAPLUS
(180) Mudge, S; Spill Sci Technol Bull 1999, V5, P353 CAPLUS
(181) Mulangala, M; Entropie 1981, V98, P97 CAPLUS
(182) Muller, M; EP 406684 1991 CAPLUS
(183) Munavu, R; Kenya J Sci Technol 1984, V5, P45 CAPLUS
(184) Nagle, N; Appl Biochem Biotechnol 1990, V24-25, P355 CAPLUS
(185) Nelson, L; INFORM 1995, V6, P509
(186) Nelson, L; J Am Oil Chem Soc 1996, V73, P1191 CAPLUS
(187) Noureddini, H; J Am Oil Chem Soc 1997, V74, P1457 CAPLUS
(188) Noureddini, H; J Am Oil Chem Soc 1998, V75, P1775 CAPLUS
(189) Nunes, P; Rev Inst Fr Pet 1986, V41, P421 CAPLUS
(190) Nye, M; J Am Oil Chem Soc 1983, V60, P1598 CAPLUS
(191) Owen, K; Automotive Fuels Reference Book 2nd ed 1995
(192) Pande, S; Fuel 1990, V69, P437 CAPLUS
(193) Pestes, M; J Test Eval 1984, V12, P61 CAPLUS
(194) Peters, R; INFORM 1996, V7, P502
(195) Peterson, C; Trans ASAE 1983, V26, P322 CAPLUS
(196) Peterson, C; Trans ASAE 1987, V30, P28 CAPLUS
(197) Peterson, G; J Am Oil Chem Soc 1984, V61, P1593 CAPLUS
(198) Plank, C; Fett Wiss Technol 1994, V96, P379 CAPLUS
(199) Plank, C; J Chromatogr, A 1994, V683, P95 CAPLUS
(200) Plank, C; J Chromatogr, A 1995, V697, P461 CAPLUS
(201) Plank, C; J High Resolut Chromatogr 1992, V15, P609 CAPLUS
(202) Plank, C; J High Resolut Chromatogr 1993, V16, P483 CAPLUS
(203) Poirier, M; US 5454842 1995 CAPLUS
(204) Posorske, L; J Am Oil Chem Soc 1984, V61, P1758 CAPLUS
(205) Prankl, H; Proc Third Liquid Fuel Conference:Liquid Fuels and Industrial Products from Renewable Resources 1996, P191 CAPLUS
(206) Pryor, R; Trans ASAE 1983, V26, P333 CAPLUS
(207) Puckett, A; U S Bur Mines, Inform Circ 1948, 7474, P14
(208) Purcell, D; J Am Oil Chem Soc 1996, V73, P381 CAPLUS
(209) Rakopoulos, C; Renewable Energy 1992, V2, P327 CAPLUS
(210) Raneses, A; Industr Crops Prods 1999, V9, P151
(211) Reed, T; Energy Biomass Wastes 1991, V15, P907 CAPLUS
(212) Rewolinski, C; J Am Oil Chem Soc 1985, V62, P1120 CAPLUS
(213) Ricardo Consulting Engineers; Diesel Engine Reference Book, 2nd edn 1998
(214) Ryan, T; J Am Oil Chem Soc 1984, V61, P1610 CAPLUS

(215) Sadeghi-Jorabchi, H; Spectrosc Eur 1994, V6, P16 CAPLUS
(216) Schmidt, A; Automobiltechn Z 1933, V36, P212 CAPLUS
(217) Schmidt, A; Erdoel, Erdgas, Kohle 1992, V108, P415 CAPLUS
(218) Scholl, K; Alternate Fuels:A Decade of Success and Promise 1994, P555 CAPLUS
(219) Schon, S; US 5004479 1991 CAPLUS
(220) Schuchardt, U; J Braz Chem Soc 1998, V9, P199 CAPLUS
(221) Schwab, A; US 4451265 1984 CAPLUS
(222) Schwab, A; US 4451267 1984 CAPLUS
(223) Schwab, A; US 4526586 1985 CAPLUS
(224) Schwab, A; US 4557734 1985 CAPLUS
(225) Schwab, A; Fuel 1987, V66, P1372 CAPLUS
(226) Schwab, A; J Am Oil Chem Soc 1988, V65, P1781 CAPLUS
(227) Schwab, A; J Dispers Sci Technol 1982, V3, P45 CAPLUS
(228) Schwab, A; J Dispers Sci Technol 1983, V4, P1 CAPLUS
(229) Schwab, A; J Dispers Sci Technol 1985, V6, P563 CAPLUS
(230) Selmi, B; J Am Oil Chem Soc 1998, V75, P691 CAPLUS
(231) Sercheli, R; J Am Oil Chem Soc 1999, V76, P1207 CAPLUS
(232) Sexton, M; EP 475620 1992 CAPLUS
(233) Shay, E; Biomass Bioenergy 1993, V4, P227 CAPLUS
(234) Shimada, Y; J Am Oil Chem Soc 1999, V76, P789 CAPLUS
(235) Siekmann, R; Proc Vegetable Oil Diesel Fuel, Seminar III, Agricultural Reviews and Manuals 1983, P163
(236) Siekmann, R; Vegetable Oil Fuels 1982, P117
(237) Sii, H; J Am Oil Chem Soc 1995, V72, P905 CAPLUS
(238) Siler-Marinkovic, S; Fuel 1998, V77, P1389 CAPLUS
(239) Simkovsky, N; Erdoel, Erdgas, Kohle 1999, V115, P317 CAPLUS
(240) Simkovsky, N; Fett/Lipid 1998, V100, P534 CAPLUS
(241) Sims, R; Trans ASAE 1985, V28, P716 CAPLUS
(242) Srivastava, A; Renew Sust Energy Rev 2000, V4, P111 CAPLUS
(243) Staat, F; Chem Ind 1994, P863 CAPLUS
(244) Stage, H; Fett Wiss Technol 1988, V90, P28 CAPLUS
(245) Stalder, K; Landtechnik 1995, V50, P266
(246) Starr, M; SAE Tech Pap Ser 972904 1997
(247) Stournas, S; J Am Oil Chem Soc 1995, V72, P433 CAPLUS
(248) Stumborg, M; Energy Biomass Wastes 1993, V16, P721 CAPLUS
(249) Sumera, F; Philipp J Sci 1990, V119, P333 CAPLUS
(250) Suppes, G; Fuel 1999, V78, P73 CAPLUS
(251) Tat, M; J Am Oil Chem Soc 2000, V77, P285
(252) Thompson, J; Trans ASAE 1998, V41, P931 CAPLUS
(253) Trathnigg, B; J Liquid Chromatogr 1990, V13, P95 CAPLUS
(254) Vaitilingom, G; Entropie 1991, V27, P39 CAPLUS
(255) van Den Abeele, M; Bull Agr Congo Belge 1942, V33, P3 CAPLUS
(256) van Gerpen, J; ASAE paper 996134 1999
(257) van Gerpen, J; Diesel Engine Reference Book 1998, P89
(258) Vellguth, G; Grundl Landtechnik 1982, V32, P177
(259) Vicente, G; Ind Crops Prod 1998, V8, P29 CAPLUS
(260) Wallace, F; Diesel Engine Reference Book 1998, P3
(261) Walton, J; Gas Oil Power 1938, V33, P167 CAPLUS
(262) Watanabe, Y; J Am Oil Chem Soc 2000, V77, P355 CAPLUS
(263) Weast, R; Handbook of Chemistry and Physics, 66th edn 1985-1986, PD-272
(264) Wehlmann, J; Fett/Lipid 1999, V101, P249 CAPLUS
(265) Wenzel, G; Fat Sci Technol 1995, V97, P475 CAPLUS
(266) Willing, A; Fett/Lipid 1999, V101, P192 CAPLUS
(267) Wu, W; J Am Oil Chem Soc 1998, V75, P1173 CAPLUS
(268) Wu, W; J Am Oil Chem Soc 1999, V76, P517 CAPLUS
(269) Yaginuma, R; Sekiyu Gakkaishi 1999, V42, P173 CAPLUS
(270) Yean, C; J Appl Organomet Chem 2000, V14, P304 CAPLUS
(271) Yu, L; J Am Oil Chem Soc 1998, V75, P1821 CAPLUS
(272) Zaher, F; Energy Sources 1993, V15, P499 CAPLUS
(273) Zaher, F; Grasas Aceites (Seville) 1990, V41, P82 CAPLUS
(274) Zemanek, G; Fett/Lipid 1999, V101, P321 CAPLUS

(275) Zhang, X; Trans ASAE 1998, V41, P1423 CAPLUS
(276) Zhang, Y; Soc Automot Eng, [Spec Publ] SP 1996, VSP-1160, P1 CAPLUS
(277) Ziejewski, M; J Am Oil Chem Soc 1984, V61, P1620 CAPLUS
(278) Ziejewski, M; SAE Tech Pap Ser 911765 1991
(279) Zubik, J; Trans ASAE 1984, V27, P1251

L7 ANSWER 12 OF 21 CAPLUS COPYRIGHT 2003 ACS
Full Text
AN 2001:390594 CAPLUS
DN 135:154933
TI Renewable vegetable oil-based alternative **fuels** for diesel engines. Part I.
AU Matyschok, Helmut
CS Inst. Technol. Org. i Tworzyw Sztucznych, Politech. Wroclaw., Wroclaw, Pol.
SO Chemik (2001), 54(3), 59-65
CODEN: CHGLAY; ISSN: 0009-2886
PB Zaklad Wydawniczy CHEMPRESS
DT Journal; General Review
LA Polish
CC 52-0 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 45, 59
AB A review with a no. of refs. In the first part of the paper presented in this issue, vegetable oils, **microemulsion** systems and **fuel** blends are discussed. In the second part to be published in Chemik 4/2001 will be discussed: transesterification, and economic and ecol. aspects of producing and using vegetable oils and their derivs. as a renewable alternative diesel **fuel**.
ST diesel **fuel** vegetable oil transesterification review
IT Diesel **fuel** substitutes
(**biodiesel**; vegetable oil-based alternative **fuels** for diesel engines)
IT Transesterification
(vegetable oil-based alternative **fuels** for diesel engines)
IT Fatty acids, uses
RL: NUU (Other use, unclassified); USES (Uses)
(vegetable-oil, esters; vegetable oil-based alternative **fuels** for diesel engines)
IT Fats and Glyceridic oils, uses
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(vegetable; vegetable oil-based alternative **fuels** for diesel engines)

L7 ANSWER 13 OF 21 CAPLUS COPYRIGHT 2003 ACS
Full Text
AN 2001:256489 CAPLUS
DN 134:328850
TI Performance of a diesel engine using transesterified **fuel** from vegetable oil (effects of water emulsification)
AU Yoshimoto, Yasufumi; Onodera, Masayuki; Tamaki, Hiroya
CS Dept. of Mechanical and Control Engineering, Niigata Institute of Technology, Kashiwazaki, Niigata, 945-1195, Japan
SO Nippon Kikai Gakkai Ronbunshu, B-hen (2001), 67(653), 264-271
CODEN: NKGBDD; ISSN: 0387-5016
PB Nippon Kikai Gakkai
DT Journal
LA Japanese
CC 51-12 (Fossil Fuels, Derivatives, and Related Products)
AB This paper investigates engine performance with an emulsified **fuel** including used frying oil composed of vegetable oils discarded from restaurants and households. A single cylinder DI diesel engine was

operated with transesterified **fuel** from used frying oil, the so called "**biodiesel**". Compared with gas oil, the BSEC of neat **biodiesel** improved at high loads and retarded injection timings, while the smoke d. was reduced at all operating conditions. The engine performance with fairly stable **emulsions** of **biodiesel** and water was also examd., and emulsified **biodiesel** with 30% (vol.) water showed a significant redn. in NOx (1100 to 400 ppm) while maintaining the min. BSEC value achieved with gas oil. It was also found that using **biodiesel emulsion** at a rated output, the trade-off relation NOx vs. BSEC and NOx vs. smoke improved slightly over the gas oil **emulsion**.

ST **biodiesel** engine performance

IT Diesel **fuel** substitutes
(**biodiesel**; performance of diesel engine using transesterified vegetable oil **fuel** (effects of water emulsification))

IT Diesel engines
(performance of diesel engine using transesterified vegetable oil **fuel** (effects of water emulsification))

IT 11104-93-1, Nitrogen oxide, formation (nonpreparative)
RL: FMU (Formation, unclassified); POL (Pollutant); FORM (Formation, nonpreparative); OCCU (Occurrence)
(performance of diesel engine using transesterified vegetable oil **fuel** (effects of water emulsification))

L7 ANSWER 14 OF 21 CAPLUS COPYRIGHT 2003 ACS
Full Text
AN 2001:248940 CAPLUS
DN 135:7694
TI Reduction of NOx and smoke emissions in a diesel engine fueled by **biodiesel emulsion** combined with EGR
AU Yoshimoto, Yasufumi; Tamaki, Hiroya
CS Niigata Institute of Technology, Japan
SO Society of Automotive Engineers, [Special Publication] SP (2001), SP-1608(New Developments in Alternative Fuels for CI Engines), 225-233
CODEN: SAESA2; ISSN: 0099-5908
PB Society of Automotive Engineers
DT Journal
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 59
AB Transesterified **fuels** (**biodiesel fuels**; BDF) from vegetable oils are alternative **fuels** for diesel engines, they are renewable and offer potential redns. in carbon dioxide emissions. Many studies have reported that exhaust from BDF has equal or higher NOx concns. while HC and PM emissions are significantly lower than with gas oil. The aim of the present investigation is to achieve drastic redns. in NOx emissions. Performance tests of a single cylinder DI diesel engine were conducted using water emulsified **fuels** from BDF and gas oil with varying water addn. rates combined with cooled EGR. The result showed that at a rated output, the emulsified gas oil with water to base **fuel** vol. ratio of 30% reduced NOx (from 1020 ppm) to 190 ppm with the 21% EGR condition maintaining the min. BSEC value achieved with EGR free gas oil operation. However, the smoke d. increased by 28%. The combined operation of 21% EGR and emulsified BDF with 30% water showed significant redns. in NOx (to 170 ppm) without worsening smoke emissions, although the BSEC increased by 4%.
ST nitrogen oxide exhaust redn diesel biofuel; transesterified vegetable oil **biodiesel** aq **emulsion**; air pollution control nitrogen oxide
IT Diesel **fuel** substitutes
(**biodiesel**; redn. of nitrogen oxide and smoke emissions in a diesel engine fueled by **biodiesel emulsion** combined with EGR)
IT Air pollution

(control; redn. of nitrogen oxide and smoke emissions in a diesel engine fueled by **biodiesel emulsion** combined with EGR)

IT Air pollution
(exhaust; redn. of nitrogen oxide and smoke emissions in a diesel engine fueled by **biodiesel emulsion** combined with EGR)

IT Air pollution
(particulate; redn. of nitrogen oxide and smoke emissions in a diesel engine fueled by **biodiesel emulsion** combined with EGR)

IT Fatty acids, uses
RL: NUU (Other use, unclassified); USES (Uses)
(vegetable-oil, esters; redn. of nitrogen oxide and smoke emissions in a diesel engine fueled by **biodiesel emulsion** combined with EGR)

IT 7732-18-5, Water, uses
RL: NUU (Other use, unclassified); USES (Uses)
(redn. of nitrogen oxide and smoke emissions in a diesel engine fueled by **biodiesel emulsion** combined with EGR)

IT 11104-93-1, Nitrogen oxide (NOx), occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(redn. of nitrogen oxide and smoke emissions in a diesel engine fueled by **biodiesel emulsion** combined with EGR)

RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Akasaka, Y; "Exhaust Emisions of a Dl Diesel Engine Fueled with Blends of Biodiesel and Low Sulfur Diesel Fuel", SAE Paper972998 1997
(2) Chang, D; "Determination of Particulate and Unburned Hydrocarbon Emissions from Diesel Engines Fueled with Biodiesel", SAE Paper 982527 1998
(3) Choi, C; "Effects of Biodiesel Blended Fuels and Multiple Injections on D I Diesel Engines", SAE Paper 970218 1997
(4) Crookes, R; "Single and Multi Cylinder Diesel-Engine Tests with Vegetable Oil Emulsions", SAE Paper 922230 1992
(5) Crookes, R; J of the Institute of Energy 1995, V68 CAPLUS
(6) Desantes, J; "Influence of the EGR Rate, Oxygen Concentration and Equivalent Fuel/Air Ratio on the Combustion Behavior and Polltant Emissions of a Heavy-Duty Diesel Engine", SAE Paper 2000-01-1813 2000
(7) Egnell, R; "The Influence of EGR on heat Release Rate and NO Formation in a Dl Diesel Engine", SAE Paper 2000-01-1807 2000
(8) Ferrone, C; "The Practical Implementation of Biodiesel as an Alternate Fuel for In-Service Motorcoaches", SAE Paper 973201 1997
(9) Geyer, S; Trans of the ASAE 1984
(10) Hamasaki, K; Trans of the JSME 1992, V59(548)
(11) Hemmerlein, N; "Performance, Exhaust Emissions and Durability of Modern Diesel Engines Running on Rapeseed Oil", SAE Paper 910848 1991
(12) Hohl, G; "Rape Oil Methyl Ester (RME) and Used Cooking Oil Methyl Ester (UOME) as Alternative Fuels", SAE Paper 952755 1995
(13) Ishii, Y; Trans of the ASAE 1987, V30(3)
(14) Ladommatos, N; "Effects of EGR on Heat Release in Diesel Combustion", SAE Paper 980184 1998
(15) Last, R; "Emissions and Performance Characteristics of a 4-Stroke, Direct Injected Diesel Engine Fueled with Blends of Biodiesel and Low Sulfur Diesel Fuel", SAE Paper 950054 1995
(16) Masjuki, H; "Emissions and Lube Oil Monitoring of a Diesel Engine Fueled with Palm Oil Methyl Esters and Its Emulsions", SAE Paper 961083 1996
(17) McDonald, J; "Emissions Characteristics of Soy Methyl Ester Fuels in an IDI Compression Ignition Engine", SAE Paper 950400 1995
(18) Mittelbach, M; JAOCS 1988, V65(7) CAPLUS
(19) Montagne, X; "Introduction of Rapeseed Methyl Ester in Diesel Fuel - The French National Program", SAE Paper 962065 1996
(20) Murayama, T; "Experimental Reduction of NOx, Smoke, and BSFC in a Diesel

Engine Using Uniquely Produced Water (0-80%) to Fuel Emulsion", SAE Paper 780224; SAE Trans 87 1979
(21) Murayama, T; "Low Carbon Flower Buildup, Low Smoke, and Efficient Diesel Operation with Vegetable Oils by Conversion to Mono-Esters and Blending with Diesel Oil or Alcohols", SAE Paper 841161 1984
(22) Schramm, J; "Emissions from a Diesel Vehicle Operated on Alternative Fuels in Copenhagen", SAE Paper 1999-01-3603 1999
(23) Shiozaki, T; "The Analysis of Combustion Flame Under EGR Conditions in a Dl Diesel Engine", SAE Paper 960323 1996
(24) Tsukahara, M; "Influence of Emulsified Fuel Properties on the Reduction of BSFC in Diesel Engine"; SAE Paper 891841; SAE Trans 98 1990
(25) Tsukahara, M; "Reduction of NOx, Smoke, BSFC, and Maximum Combustion Pressure by Low Compression Ratios in a Diesel Engine Fueled by Emulsified Fuel", SAE Paper 920464 1992
(26) Tsukahara, M; "W/O Emulsion Realizes Low Smoke and Efficient Operation of DI Engines without High Pressure Injection", SAE Paper 890449; SAE Trans 98 1990
(27) Tsukahara, M; Bulletin of the JSME 1982, V25-202
(28) Tsukahara, M; Bulletin of the JSME 1982, V25-208
(29) Yoshimoto, Y; "Improvement of BSFC by Reducing Diesel Engine Cooling Losses with Emulsified Fuel", SAE Paper 962022 1996
(30) Yoshimoto, Y; "NOx Reduction with EGR in a Diesel Engine Using Emulsified Fuel", SAE Paper 982490 1998
(31) Yoshimoto, Y; "Reduction of NOx, Smoke, and BSFC in a Diesel Engine Fueled by Biodiesel Emulsion with Used Frying Oil", SAE Paper 1999-01-3598 1999
(32) Zhang, Y; "Combustion Analysis of Esters of Soybean Oil in a Diesel Engine", SAE Paper 962065 1996
(33) Ziejewski, M; "Comparative Analysis of the Long-Term Performance of a Diesel Engine on Vegetable Oil Based Alternate Fuels", SAE Paper 860301 1986

L7 ANSWER 15 OF 21 CAPLUS COPYRIGHT 2003 ACS
Full Text
AN 2001:248938 CAPLUS
DN 134:313392
TI Effects of alternative **fuels** and intake port geometry on HSDI diesel engine performance and emissions
AU Corgard, Daniel D.; Reitz, Rolf D.
CS University of Wisconsin-Madison, Madison, WI, USA
SO Society of Automotive Engineers, [Special Publication] SP (2001), SP-1608(New Developments in Alternative Fuels for CI Engines), 189-203
CODEN: SAESA2; ISSN: 0099-5908
PB Society of Automotive Engineers
DT Journal
LA English
CC 51-12 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59
AB This research explored methods to reduce regulated emissions in a small-bore, direct-injection diesel engine. Swirl was used to influence mixing of the spray plumes, and alternative **fuels** were used to study the effects of oxygenated and water **microemulsion** diesel **fuels** on emissions. Air/**fuel** mixing enhancement was achieved in the running engine by blocking off a percentage of one of the two intake ports. The swirl was characterized at steady-state conditions with a flowbench and swirl meter. Swirl ratios of 1.85, 2.70, and 3.29 were studied in the engine tests at full load with engine speeds of 1303, 1757, and 1906 rev/min. Increased swirl had neg. effects on emissions due to plume-to-plume interactions. Blends of No. 2 diesel and **biodiesel** were used to investigate the presence of oxygen in the **fuel** and its effects on regulated emissions. Pure No. 2 diesel **fuel**, a 15% and a 30% **biodiesel** blend (by wt.) were used. The effects were investigated at full load with engine speeds of 1303 and 1757 rev/min and a swirl ratio of

1.85. The particulate emissions were reduced significantly with the use of oxygen in the **fuel**. A study was also performed by using a water-diesel **microemulsion fuel** to assess the potential for addnl. NOx redn. of advanced **fuels** compared to a California Ref. diesel **fuel**. The **microemulsion** contained 10% by vol., 20-30 nm diam. water droplets, and was run at part and full loads at 1757 rev/min. The results overall showed great redns. in regulated emissions, indicating that this new **fuel** concept holds significant promise for future applications.

ST diesel engine performance emission alternative **fuels**

IT **Fuels**
(alternative; effects of alternative **fuels** and intake port geometry on HSDI diesel engine performance and emissions)

IT Diesel **fuel** substitutes
(**biodiesel**; effects of alternative **fuels** and intake port geometry on HSDI diesel engine performance and emissions)

IT Air pollution
(control; effects of alternative **fuels** and intake port geometry on HSDI diesel engine performance and emissions)

IT Combustion
Diesel engines
(effects of alternative **fuels** and intake port geometry on HSDI diesel engine performance and emissions)

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Anon; Personal Communication from Thiel, M 1998
(2) Anon; Private Communication from Gonzalez D, M A 1999
(3) Batchelor, G; An Introduction to Fluid Dynamics 1970
(4) Choi, C; PhD Thesis at University of Wisconsin-Madison 1998
(5) Coghe, A; "Effects of Intake Ports on the In-Cylinder Air Motion under Steady Flow Conditions", SAE Paper 880384 1988
(6) Corgard, D; M S Thesis at University of Wisconsin-Madison 2000
(7) Kang, K; Journal of Engineering for Gas Turbines and Power, Transactions of the ASME 2000
(8) Krieger, R; "Diesel Engines:One Option to Power Future Personal Transportation Vehicles", SAE Paper 972683 1997
(9) Monaghan, M; "Air Motion and Its Effect on Diesel Performance and Emissions", SAE Paper 810255 1981
(10) Montgomery, D; SAE Paper 960316, SAE Transactions, Section 3, Journal of Engines 1996, V105, P356
(11) Rubino, L; "The Effect of Oxygenated Additives on Soot Precursor Formation in a Counterflow Diffusion Flame", SAE Paper 1999-01-3589 1999
(12) Stone, C; "The Measurement and Analysis of Swirl in Steady Flow", SAE Paper 921642 1992
(13) Tennison, P; ASME Transactions Journal of Gas Turbines and Power 2000

L7 ANSWER 16 OF 21 CAPLUS COPYRIGHT 2003 ACS

Full Text

AN 2000:307715 CAPLUS

DN 132:336812

TI Vegetable oil, multicomponent **fuels** and water **emulsions** in the production of **biodiesel**

AU Maurer, K.

CS Landesanstalt fur landwirtschaftliches Maschinen- und Bauwesen, Universitat Hohenheim, Germany

SO Landbauforschung Voelkenrode, Sonderheft (1998), 190(Biodiesel--Optimierungspotentiale und Umwelteffekte), 45-50
CODEN: LVSWAI; ISSN: 0376-0723

PB Bundesforschungsanstalt fuer Landwirtschaft Braunschweig-Voelkenrode

DT Journal

LA German

CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)

AB Fatty acid Me ester, rape seed oil and several mixts. of rape seed oil

with alcs., gasoline and diesel **fuel** were tested on their reliability for substitution of diesel **fuel** in engines. The specific d., the viscosity, the inflammation point, the Cetan value, and the calorific value of these components were compared to that of pure diesel **fuel**. It was found that fatty acid Me ester, so-called **biodiesel**, was a good substitute for diesel **fuel**, while the most mixts. of rape seed oil with alcs. and mineral oil components did not fulfill the recommendations to substitute diesel **fuel** in conventional engines.

ST rape seed oil mixt substitute diesel **fuel**; **biodiesel** fatty acid vegetable oil

IT Fatty acids, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(Me esters; vegetable oil, multicomponent **fuels**, and water **emulsions** in prodn. of **biodiesel**)

IT Diesel **fuel** substitutes
(**biodiesel**; vegetable oil, multicomponent **fuels**, and water **emulsions** in prodn. of **biodiesel**)

IT **Emulsions**
Emulsions
(diesel **fuel**; vegetable oil, multicomponent **fuels**, and water **emulsions** in prodn. of **biodiesel**)

IT Diesel **fuel**
Diesel **fuel**
(**emulsions**; vegetable oil, multicomponent **fuels**, and water **emulsions** in prodn. of **biodiesel**)

IT Viscosity
(vegetable oil, multicomponent **fuels**, and water **emulsions** in prodn. of **biodiesel**)

IT Gasoline
Rape oil
RL: TEM (Technical or engineered material use); USES (Uses)
(vegetable oil, multicomponent **fuels**, and water **emulsions** in prodn. of **biodiesel**)

IT Fatty acids, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(vegetable-oil, Me esters; vegetable oil, multicomponent **fuels**, and water **emulsions** in prodn. of **biodiesel**)

IT Fats and Glyceridic oils, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(vegetable; vegetable oil, multicomponent **fuels**, and water **emulsions** in prodn. of **biodiesel**)

IT 64-17-5, Ethanol, uses 192391-56-3, RME
RL: TEM (Technical or engineered material use); USES (Uses)
(vegetable oil, multicomponent **fuels**, and water **emulsions** in prodn. of **biodiesel**)

RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Elab Engineering Development Ab Und Ecotraffic RDAb; Project Esterol 1998, 1
(2) Grieser, F; Motoruntersuchungen mit Tessol II 1997
(3) Konig, W; Untersuchungen zum Einsatz von Rapsol und Rapsolprodukten im landwirtschaftlichen Betrieb, Abschlubericht zum gleichnamigen Forschungsvorhaben des BML 1996
(4) Mauer, K; Anforderungen an pflanzliche Ole als Treibstoff, Vortrag Landwirtschaftlicher Hochschultag Universitat Hohenheim 1995
(5) Mauerer, K; Vortrag anlalich Symposium Euro-Bio-Diesel 1994
(6) May, H; Bericht uber Prufstandsuntersuchungen mit TESSOL-NADI 1994
(7) May, H; Neuere Untersuchungen uber die Umweltvertraglichkeit und die Dauerstandfestigkeit von Vorkammer- und direkteinspritzenden Dieselmotoren bei Betrieb mit Rapsol und Rapsolmethylester 1992, V1020, PS189
(8) Reiser, W; Ermittlung von motor- und verbrennungstechnischen Kenndaten an einem Dieselmotor mit Direkteinspritzung bei Betrieb mit unterschiedlich

aufbereitetem Rapsol, VDI-Fortschritt-Berichte 1997, 316
(9) Rinaldi, M; Pflanzenolgemische als Dieseltreibstoff, FAT-Berichte 1997, 502
(10) Weidmann, K; Anwendung von Rapsol in Fahrzeug-Dieselmotoren, ATZ Automobiltechnische Zeitschrift 1995, V97
(11) Worgetter, M; Erprobung von Biodiesel-Flottenversuch, Kraftstoffqualitat und Emissionen Technische Akademie Esslingen 1991
(12) Zilmans, R; Biodiesel senkt die Emissionen 1996

L7 ANSWER 17 OF 21 CAPLUS COPYRIGHT 2003 ACS
Full Text
AN 1999:743170 CAPLUS
DN 132:52280
TI Reduction of NOx, smoke, and BSFC in a diesel engine fueled by **biodiesel emulsion** with used frying oil
AU Yoshimoto, Yasufumi; Onodera, Masayuki; Tamaki, Hiroya
CS Niigata Institute of Technology, Japan
SO Society of Automotive Engineers, [Special Publication] SP (1999), SP-1482(Alternative Fuels 1999), 167-174
CODEN: SAESA2; ISSN: 0099-5908
PB Society of Automotive Engineers
DT Journal
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 59, 60
AB This paper investigates engine performance with a stable emulsified **fuel** including frying oil, composed of vegetable oils discarded from restaurants and households. To reduce the oil viscosity, equal proportions of used frying oil and gas oil were mixed and **emulsions** of this blended **fuel** and water were prepd. Performance tests of a single cylinder DI diesel engine showed that the NOx concn. and smoke d. both reduced without worsening BSFC with water to **fuel** vol. ratios of 15-30% at a rated output. The engine was also operated with transesterified **fuel** from used frying oil, the so called "**biodiesel**". The BSFC of neat **biodiesel** was lower than with gas oil at high loads and retarded injection timings, while the smoke d. was reduced at all operating conditions. The engine performance with fairly stable **emulsions** of **biodiesel** and water was also examd., and emulsified **biodiesel** with 30 %(vol.) water showed a significant redn. in NOx (1100 to 400 ppm) while maintaining the min. BSFC value achieved with gas oil.
ST air pollution control exhaust **biodiesel fuel**; frying oil used **emulsion** diesel **fuel**
IT Diesel **fuel** substitutes
(**biodiesel**; redn. of NOx, smoke, and BSFC in a diesel engine fueled by **biodiesel emulsion** with used frying oil)
IT Air pollution
(control; redn. of NOx, smoke, and BSFC in a diesel engine fueled by **biodiesel emulsion** with used frying oil)
IT Air pollution
(exhaust; redn. of NOx, smoke, and BSFC in a diesel engine fueled by **biodiesel emulsion** with used frying oil)
IT Exhaust particles (engine)
(redn. of NOx, smoke, and BSFC in a diesel engine fueled by **biodiesel emulsion** with used frying oil)
IT Fats and Glyceridic oils, uses
RL: NUU (Other use, unclassified); USES (Uses)
(vegetable, frying, used; redn. of NOx, smoke, and BSFC in a diesel engine fueled by **biodiesel emulsion** with used frying oil)
IT 11104-93-1, Nitrogen oxide (NOx), occurrence
RL: POL (Pollutant); OCCU (Occurrence)
(redn. of NOx, smoke, and BSFC in a diesel engine fueled by **biodiesel emulsion** with used frying oil)

RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Akasaka, Y; SAE Paper 972998 1997
(2) Chang, D; JAOCS 1996, V73(11) CAPLUS
(3) Chang, D; SAE Paper 971684 1997
(4) Chang, D; SAE Paper 982527 1998
(5) Choi, C; SAE Paper 970218 1997
(6) Crookes, R; J of the Institute of Energy 1995, V68 CAPLUS
(7) Crookes, R; SAE Paper 922230 1992
(8) Ferrone, C; SAE Paper 973201 1997
(9) Geyer, S; Trans of the ASAE 1984
(10) Hamasaki, K; Trans of the JSME (in Japanese) 1992, V59(548)
(11) Hemmerlein, N; SAE Paper 910848 1991
(12) Hohl, G; SAE Paper 952755 1995
(13) Ishii, Y; Trans of the ASAE 1987, V30(3)
(14) Last, R; SAE Paper 950054 1995
(15) Masjuki, H; SAE Paper 961083 1996
(16) McDonald, J; SAE Paper 950400 1995
(17) Mittelbach, M; JAOCS 1988, V65(7) CAPLUS
(18) Montagne, X; SAE Paper 962065 1996
(19) Murayama, T; SAE Paper 841161 1984
(20) Murayama, T; SAE Trans 1979, V87
(21) Niemi, S; SAE Paper 982528 1998
(22) Tsukahara, M; Bulletin of the JSME 1982, V25-202
(23) Tsukahara, M; Bulletin of the JSME 1982, V25-208
(24) Tsukahara, M; SAE Paper 920464 1992
(25) Tsukahara, M; SAE Trans 1990, V98
(26) Tsukahara, M; SAE Trans 1990, V98
(27) Yoshimoto, Y; SAE Paper 962022 1996
(28) Yoshimoto, Y; SAE Paper 982490 1998
(29) Zhang, Y; SAE Paper 962065 1996
(30) Ziejewski, M; SAE Paper 860301 1986

L7 ANSWER 18 OF 21 CAPLUS COPYRIGHT 2003 ACS
Full Text
AN 1999:505962 CAPLUS
DN 131:132259
TI Motor **fuel** for diesel engines suitable for operation with difficultly combustible **fuels**
IN Wolf, Gabriele
PA Germany
SO Ger. Offen., 2 pp.
CODEN: GWXXBX
DT Patent
LA German
IC ICM C10L001-10
ICS C10L001-32; F02M025-00
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 19904194	A1	19990805	DE 1999-19904194	19990202
PRAI DE 1998-29801741		19980203		

AB The diesel **fuel** substitute contains water, vegetable oil or waste fat, and an emulsifier or solvent to form a homogeneous liq. Optionally, the **fuel** also contains a conventional corrosion inhibitor, freeze-protecting agent, and cetane no. improver.
ST **biodiesel** water **emulsion fuel**; diesel **fuel** substitute water **emulsion**; vegetable oil **emulsion** diesel **fuel** substitute; waste fat **emulsion** diesel **fuel** substitute
IT Diesel **fuel** substitutes
(**biodiesel**; aq. **emulsion** of plant oil or waste fat)

IT Emulsifying agents
Solvents
(in aq. **emulsion biodiesel**)
IT Fats and Glyceridic oils, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(vegetable; in aq. **emulsion biodiesel**)
IT Fats and Glyceridic oils, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(waste; in aq. **emulsion biodiesel**)

L7 ANSWER 19 OF 21 CAPLUS COPYRIGHT 2003 ACS
Full Text
AN 1999:335271 CAPLUS
DN 130:340525
TI **Biodiesel** production: a review
AU Ma, Fangrui; Hanna, Milford A.
CS Department of Food Science and Technology, University of Nebraska, Lincoln, NE, 68583-0730, USA
SO Bioresource Technology (1999), 70(1), 1-15
CODEN: BIRTEB; ISSN: 0960-8524
PB Elsevier Science Ltd.
DT Journal; General Review
LA English
CC 52-0 (Electrochemical, Radiational, and Thermal Energy Technology)
AB A review with many refs. **Biodiesel** has become more attractive recently because of its environmental benefits and the fact that it is made from renewable resources. The cost of **biodiesel**, however, is the main hurdle to commercialization of the product. The used cooking oils are used as raw material, adaptation of continuous transesterification process and recovery of high quality glycerol from **biodiesel** byproduct (glycerol) are primary options to be considered to lower the cost of **biodiesel**. There are four primary ways to make **biodiesel**: direct use and blending, **microemulsions**, thermal cracking (pyrolysis), and transesterification. The most commonly used method is transesterification of vegetable oils and animal fats. The transesterification reaction is affected by molar ratio of glycerides to alc., catalysts, reaction temp., reaction time, and free fatty acids and water content of oils or fats. The mechanism and kinetics of the transesterification show how the reaction occurs and progresses. The processes of transesterification and its downstream operations are also addressed.
ST review **biodiesel** prodn
IT Diesel **fuel** substitutes
Diesel **fuel** substitutes
(**biodiesel**; evaluation of methods for prodn. of **biodiesel**)
RE.CNT 71 THERE ARE 71 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) ASAE; Proceedings of the international conference on plant and vegetable oils as fuels 1982
(2) Adams, C; JAOCS 1983, V60, P1574 CAPLUS
(3) Alencar, J; J Agric Food Chem 1983, V31, P1268 CAPLUS
(4) Ali, Y; PhD dissertation. Biological Systems Engineering, University of Nebraska-Lincoln 1995
(5) Allen, H; US 2383579 1945 CAPLUS
(6) Anon; JAOCS 1982, V59, P780A
(7) Bartholomew, D; JAOCS 1981, V58, P286A
(8) Billaud, F; JAOCS 1995, V72, P1149 CAPLUS
(9) Bradshaw, G; US 2360844 1944 CAPLUS
(10) Calvin, M; Ann Proc Phytochem Soc Eur 1985, V26, P147
(11) Chang, C; Ind Eng Chem 1947, V39, P1543 CAPLUS
(12) Eckey, E; JAOCS 1956, V33, P575
(13) Engler, C; JAOCS 1983, V60, P1592 CAPLUS

(14) Feuge, R; JAOCS 1949, V26, P97 CAPLUS
(15) Formo, M; Physical properties of fats and fatty acids Vol 1 4th edition 1979, P193
(16) Freedman, B; JAOCS 1984, V61, P1638 CAPLUS
(17) Freedman, B; JAOCS 1986, V63, P1375 CAPLUS
(18) Gauglitz, E; JAOCS 1963, V40, P197 CAPLUS
(19) Goering, C; Final report for project on Effect of nonpetroleum fuels on durability of direct-injection diesel engines under contract 59-2171-1-6-057-0 1984
(20) Goering, C; JAOCS 1984, V61, P1627 CAPLUS
(21) Goering, C; Trans ASAE 1982, V25, P1472 CAPLUS
(22) Goering, C; proceedings of the international conference on plant and vegetable oils as fuels 1982, V4, P279
(23) Grossley, T; JAOCS 1962, V39, P9
(24) Harrington, K; JAOCS 1985, V62, P1009 CAPLUS
(25) Hartman, L; JAOCS 1956, V33, P129 CAPLUS
(26) Harwood, H; JAOCS 1984, V61, P315 CAPLUS
(27) Jackson, M; JAOCS 1996, V73, P353 CAPLUS
(28) Keim, G; US 2383601 1945 CAPLUS
(29) Kildiran, G; JAOCS 1996, V73, P225 CAPLUS
(30) Kincs, F; JAOCS 1985, V62, P815 CAPLUS
(31) Krawczyk, T; INFORM 1996, V7, P801
(32) Kreutzer, U; JAOCS 1984, V61, P343 CAPLUS
(33) Lee, I; JAOCS 1995, V72, P1155 CAPLUS
(34) Ma, F; Bioresource Technology 1999, V69, P289 CAPLUS
(35) Ma, F; Ind Eng Chem Res 1998, V37, P3768 CAPLUS
(36) Ma, F; PhD dissertation Biological Systems Engineering, University of Nebraska-Lincoln 1998
(37) Ma, F; Trans ASAE 1998, V41, P1261 CAPLUS
(38) Muniyappa, P; Master thesis, Chemical Engineering, University of Nebraska-Lincoln 1995
(39) Murayama, T; INFORM 1994, V5, P1138
(40) Nagel, N; Appl Biochem Biotechnol 1990, V24, P355
(41) Niehaus, R; Trans ASAE 1986, V29, P683
(42) Nye, M; Proc Vegetable Oil as Diesel Fuel Seminar III 1983, P78
(43) Ooi, C; JAOCS 1996, V73, P233 CAPLUS
(44) Peterson, C; JAOCS 1983, V60, P1579 CAPLUS
(45) Pioch, D; Oleagineux 1993, V48, P289 CAPLUS
(46) Pryde, E; JAOCS 1983, V60, P1557
(47) Pryde, E; JAOCS 1984, V61, P1609
(48) Pryor, R; Trans ASAE 1983, V26(2), P333 CAPLUS
(49) Schlautman, N; Trans ASAE 1986, V29(1), P70
(50) Schlick, M; Trans ASAE 1988, V31(5), P1345
(51) Schwab, A; Fuel 1987, V66, P1372 CAPLUS
(52) Schwab, A; JAOCS 1988, V65, P1781 CAPLUS
(53) Shay, E; Biomass and Bioenergy 1993, V4, P227 CAPLUS
(54) Smith, M; US 2444-486 Process of producing esters 1949
(55) Sonntag, N; Composition and characteristics of individual fats and oils vol 1 4th edition 1979, P343
(56) Sonntag, N; Reactions of fats and fatty acids vol 1 4th edition 1979, P99
(57) Sonntag, N; Structure and composition of fats and oils vol 1 4th edition 1979, P1
(58) Sprules, F; US 2366-494 1950 CAPLUS
(59) Sridharan, R; J Scient Ind Res 1974, V33, P178 CAPLUS
(60) Stern, R; US 5424-466 1995 CAPLUS
(61) Strayer, R; JAOCS 1983, V60, P1587 CAPLUS
(62) Tanaka, Y; US 4303-590 1981 CAPLUS
(63) Trent, W; US 2383-632 1945 CAPLUS
(64) Weisz, P; Science 1979, V206, P57 CAPLUS
(65) Wimmer, T; AT 349-571 1992
(66) Wimmer, T; WO 9200-9268 PCT Int Appl 1992
(67) Wright, H; A report on ester interchange 1944, V21, P145 CAPLUS

(68) Zhang, D; Master thesis, Food Science and Technology, University of Nebraska-Lincoln 1994
(69) Ziejewski, M; Argic Rev Man 1983, P106
(70) Ziejewski, M; International Congress and Exposition 1986
(71) Ziejewski, M; JAOCS 1984, V61, P1620 CAPLUS

L7 ANSWER 20 OF 21 CAPLUS COPYRIGHT 2003 ACS
Full Text
AN 1999:313616 CAPLUS
DN 131:33773
TI The effect of mixing on transesterification of beef tallow
AU Ma, Fangrui; Clements, L. Davis; Hanna, Milford A.
CS Industrial Agricultural Product Center, University of Nebraska-Lincoln, Lincoln, NE, 68583-0730, USA
SO Bioresource Technology (1999), 69(3), 289-293
CODEN: BIRTEB; ISSN: 0960-8524
PB Elsevier Science Ltd.
DT Journal
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 45, 51
AB Mixing is very important to the transesterification of beef tallow, because melted beef tallow and a NaOH-MeOH mixt. are immiscible. There was no reaction without mixing. When NaOH-MeOH was added to the melted beef tallow in the reactor while stirring, stirring speed was insignificant. Reaction time was the controlling factor in detg. the yield of Me esters. This suggested that the stirring speeds investigated exceeded the threshold requirement of mixing. When NaOH-MeOH was added to the melted beef tallow without stirring, higher stirring speeds or longer stirring times were needed to mix the two phases subsequently. In both cases, once the two phases were mixed and the reaction was started, stirring was no longer needed. Misek's equation was applicable to the former case. The droplet diam. was inversely proportional to the square of the rotation speed (n). But in the latter case, the droplet diam. was inversely proportional to n1.2. Smaller NaOH-MeOH droplets in melted beef tallow resulted in fast transesterification reaction and stable **emulsion**.
ST **biodiesel** transesterification beef tallow mixing effect
IT Diesel **fuel** substitutes
(**biodiesel**; effect of mixing on transesterification of beef tallow)
IT Mixing
Transesterification
Transesterification catalysts
(effect of mixing on transesterification of beef tallow)
IT Tallow
RL: RCT (Reactant); RACT (Reactant or reagent)
(effect of mixing on transesterification of beef tallow)
IT Fatty acids, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(tallow, Me esters; effect of mixing on transesterification of beef tallow)
IT 1310-73-2, Sodium hydroxide, uses
RL: CAT (Catalyst use); USES (Uses)
(effect of mixing on transesterification of beef tallow)
IT 67-56-1, Methanol, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(effect of mixing on transesterification of beef tallow)
RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Ali, Y; Biores Technol 1994, V47, P131 CAPLUS
(2) Ali, Y; Biores Technol 1995, V52, P237 CAPLUS
(3) Ali, Y; Biores Technol 1995, V53, P243 CAPLUS

(4) Ali, Y; JAOCS 1995, V72, P1557 CAPLUS
(5) Azbel, D; Fluid Mechanics and Unit Operations 1983, P680
(6) Azbel, D; Fluid Mechanics and Unit Operations 1983, P705
(7) Bradshaw, G; US 2360844 1944 CAPLUS
(8) Freedman, B; JAOCS 1984, V61, P1638 CAPLUS
(9) Freedman, B; JAOCS 1986, V63, P1375 CAPLUS
(10) Hanna, M; JAOCS 1996, V73, P759 CAPLUS
(11) Kildiran, G; JAOCS 1996, V73, P225 CAPLUS
(12) Krawczyk, T; INFORM 1996, V7, P801
(13) Ma, F; Ind Eng Chem Res 1998, V37, P3768 CAPLUS
(14) Peterson, C; Proceedings of an Alternative Energy Conference of ASAE 1992, P99 CAPLUS
(15) Plank, C; J Chromatogr A 1995, V697, P461 CAPLUS
(16) Schwab, A; Fuel 1987, V66, P1372 CAPLUS

L7 ANSWER 21 OF 21 CAPLUS COPYRIGHT 2003 ACS
Full Text
AN 1998:501563 CAPLUS
DN 129:163825
TI **Biodiesel Fuel** from Animal Fat. Ancillary Studies on Transesterification of Beef Tallow
AU Ma, Fangrui; Clements, L. Davis; Hanna, Milford A.
CS Food Science and Technology Biological Systems Engineering and Industrial Agricultural Products Center, University of Nebraska Lincoln, Lincoln, NE, 68583, USA
SO Industrial Engineering Chemistry Research (1998), 37(9), 3768-3771
CODEN: IECRED; ISSN: 0888-5885
PB American Chemical Society
DT Journal
LA English
CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 45
AB Transesterification of beef tallow was investigated. The soly. of ethanol in beef tallow was much higher than that of methanol. At 100° the soly. of methanol was 19% (wt./wt.). The soly. of ethanol in beef tallow reached 100% (wt./wt.) at about 68°. For the distribution of methanol between beef tallow Me esters (BTME) and glycerol, the percentage of total methanol in the glycerol phase was higher than that in the fatty acid Me ester (FAME) phase in a simulated system at room temp. At 65-80°, however, the percentage of total methanol in FAME (60% (wt./wt.)) was higher than that in glycerol (40% (wt./wt.)) in a 90:10 (wt./wt.) blend of FAME and glycerol. This coincided with the methanol distribution in the transesterified product. The process for making beef tallow Me esters should recover methanol using vacuum distn., sep. the ester and glycerol phases, and then wash the beef tallow Me esters with warm water. At neutral pH, the sepn. of ester and glycerol and water washing was easier because it reduced **emulsion** formation.
ST **biodiesel fuel** animal fat; transesterification beef tallow **biodiesel fuel**
IT Fatty acids, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(Me esters; ancillary studies on transesterification of beef tallow for **biodiesel fuel**)
IT Diesel **fuel** substitutes
Transesterification
(ancillary studies on transesterification of beef tallow for **biodiesel fuel**)
IT Tallow
RL: RCT (Reactant); RACT (Reactant or reagent)
(ancillary studies on transesterification of beef tallow for **biodiesel fuel**)
IT **Fuels**
(biofuels; ancillary studies on transesterification of beef tallow for

biodiesel fuel)
IT Fatty acids, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(tallow, Me esters; ancillary studies on transesterification of beef tallow for **biodiesel fuel**)
IT 64-17-5, Ethanol, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(ancillary studies on transesterification of beef tallow for **biodiesel fuel**)
IT 67-56-1, Methanol, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(ancillary studies on transesterification of beef tallow for **biodiesel fuel**)
IT 56-81-5, 1,2,3-Propanetriol, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(ancillary studies on transesterification of beef tallow for **biodiesel fuel**)
RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Bradshaw, G; US 2360844 1944 CAPLUS
(2) Feuge, R; J Am Oil Chem Soc 1949, V26, P97 CAPLUS
(3) Freedman, B; J Am Oil Chem Soc 1984, V61, P1638 CAPLUS
(4) Freedman, B; J Am Oil Chem Soc 1986, V63, P1375 CAPLUS
(5) Hasset, D; Bull No 83-05-EES-03 1983
(6) Jungermann, E; Soap Bailey's Industrial Oil and Fat Products, 4th ed 1979, V1, P510
(7) Kildiran, G; J Am Oil Chem Soc 1996, V73, P225 CAPLUS
(8) Krawczyk, T; INFORM 1996, V7, P801
(9) Kreutzer, U; J Am Oil Chem Soc 1984, V61, P343 CAPLUS
(10) Schwab, A; Fuel 1987, V66, P1372 CAPLUS
(11) Shay, E; Biomass Bioenergy 1993, V4, P227 CAPLUS
(12) Varese, R; INFORM 1996, V7, P816

=> file stnguide

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	87.58	87.79

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-13.67	-13.67

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FILE CONTAINS CURRENT INFORMATION.
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=> file caplus

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.42	88.21

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	0.00	-13.67

FILE 'CAPLUS' ENTERED AT 07:26:23 ON 18 JUL 2003

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FILE LAST UPDATED: 17 Jul 2003  (20030717/ED)

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=> d his

     (FILE 'HOME' ENTERED AT 07:06:51 ON 18 JUL 2003)

     FILE 'CAPLUS' ENTERED AT 07:07:08 ON 18 JUL 2003
L1        218311 S EMULSION OR MICROEMULSION OR MICRO-EMULSION
L3          1862 S (SOYA OR SOYBEAN OR SOY) AND RAPESEED
L4           665 S BIODIESEL
L5           104 S L1 AND (L4 OR L3)
L6         36960 S EMULSIFIER OR EMULSIVE
L7            21 S FUEL AND L5

     FILE 'STNGUIDE' ENTERED AT 07:11:11 ON 18 JUL 2003

     FILE 'CAPLUS' ENTERED AT 07:26:23 ON 18 JUL 2003

=> s stearyl  and cetyl
          12347 STEARYL
              1 STEARYLS
          12347 STEARYL
                  (STEARYL OR STEARYLS)
          12096 CETYL
L8         2405 STEARYL  AND CETYL

=> s l1 ans l8
MISSING OPERATOR L1 ANS
The search profile that was entered contains terms or
nested terms that are not separated by a logical operator.

=> s l1 and l8
L9          504 L1 AND L8

=> s l9 and (l3 or l4)
L10           0 L9 AND (L3 OR L4)

=> log y
COST IN U.S. DOLLARS                            SINCE FILE      TOTAL
                                                   ENTRY    SESSION
FULL ESTIMATED COST                                 5.11      93.32

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)      SINCE FILE      TOTAL
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	ENTRY	SESSION
CA SUBSCRIBER PRICE	0.00	-13.67

STN INTERNATIONAL LOGOFF AT 07:28:31 ON 18 JUL 2003